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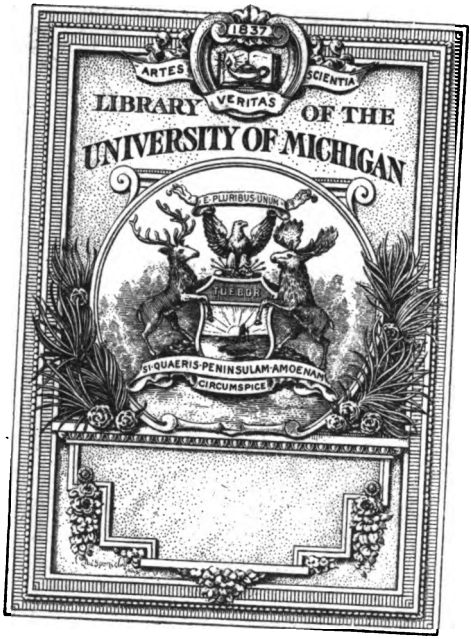

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CATALOGUE

OF THE

UNIVERSITY OF PENNSYLVANIA

Founded 1740

1898-99

PHILADELPHIA
PRINTED FOR THE UNIVERSITY
DECEMBER, 1898

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THE UNIVERSITY.

General Statements.

LOCATION.

The buildings of the University of Pennsylvania, twenty-six in number, are situated in Philadelphia, on property covering an area of over fifty-two acres. The University may be reached from the various railroad stations in Philadelphia by the electric cars as follows: from the terminal stations of the Philadelphia & Reading and Pennsylvania railroads; Market street cars west to Thirty-fourth street, thence on foot south to Woodland avenue, a trip of about fifteen minutes; or, from the Baltimore & Ohio railroad depot, by a walk of one square south to Walnut street, thence by car over the bridge west to Thirty-fourth street, a ride of about five minutes.

ACCOMMODATIONS FOR STUDENTS.

Accommodation for students to the number of three hundred and fifty is provided in the new dormitory system. These "houses" are described at length in the body of the Catalogue. Plans, prices, and all other information relating to the dormitories may be had upon application to the Registrar of the College.

A large temporary dining hall, or "Commons," has been erected at the corner of Spruce and Thirty-sixth streets, where about seven hundred students can obtain board.

In addition, board and lodging may be obtained in the immediate vicinity of the University from five dollars per week upwards. Upon application at the offices of the Deans of the several Departments (see *Administrative Officers,* following), lists of approved boarding houses may be seen.

APPLICATIONS FOR CATALOGUES, ETC.

Applications for copies of the annual University Catalogue (published in December) should be addressed to the Assistant Secretary, University of Pennsylvania, Philadelphia, Pa. No charge is made for the Catalogue, *but in all cases the request must be accompanied by ten cents in stamps* to cover return postage.

Special Circulars of Information, relating either to the separate Departments of the University, or to the various courses (liberal and scientific) offered in the College proper, will be mailed free to anyone upon receipt of name and address. Such applications should be addressed to the Deans of the several departments.

All letters of inquiry regarding the internal regulations and requirements in each separate Department of the University, should be addressed to the Dean of that Department (see *Administrative Officers,* following) and *not* to the Secretary of the University.

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CALENDAR FOR 1898–1899.

Meetings of the Corporation are held on the first Tuesday in each month.

1898.

Sept. 23, Friday, ..Session begins: College, 10 A. M.
Oct. 1, Saturday, ..Session begins: Department of Medicine, Dentistry and Veterinary Medicine, 12 M.
Oct. 1, Saturday, ..First Term begins: Departments of Law and Philosophy.
Nov. 23, Wednesday, ..Thanksgiving Recess begins: College, 5 P. M. Departments of Law and Medicine, 6.30 P. M. Departments of Dentistry and Veterinary Medicine, 5.30 P. M.
Nov. 26, Saturday, ..Thanksgiving Recess ends: College, 9 A. M.
Nov. 28, Monday ..Thanksgiving Recess ends: Department of Law, 9. A. M. Departments of Medicine, Dentistry and Veterinary Medicine, 10 A. M.
Dec. 23, Friday, ..Christmas Recess begins: College, 5 P. M. Department of Law, 6 P. M. Departments of Medicine, Dentistry and Veterinary Medicine, 6.30 P. M.

1899.

Jan. 3, Tuesday, ..Christmas Recess ends: College and Department of Law, 9 A. M. Departments of Medicine, Dentistry and Veterinary Medicine, 10 A. M.
Jan. 23, Monday, ..Mid-Year Examinations begin: College, 9 A. M.
Feb. 1, Wednesday, ..Second Term begins: Department of Law, 9 A. M.
Feb. 6, Monday, ..Second Term begins: College, 9 A. M.
Feb. 22, Wednesday, ..University Day: Recess, all Departments.
Mar. 30, Thursday, ..Easter Recess begins: College, 5 P. M. Departments of Law and Medicine, 6.30 P. M. Departments of Dentistry and Veterinary Medicine, 5.30 P. M.
April 1, Saturday, ..Last day for receipt of Prize Essays and Reports: Department of Medicine.
April 3, Monday, ..Easter Recess ends: Departments of Medicine, Dentistry and Veterinary Medicine, 10 A. M.
April 4, Tuesday, ..Easter Recess ends: College and Department of Law, 9 A. M.
May 1, Monday, ..Last day for receipt of Theses and Prize Essays: College.

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May 22, Monday, ..Examinations begin: Department of Law, 9 A. M.
May 29, Monday, ..Examinations begin: College 9 A. M.
June 14, Wednesday, ..Commencement, 11 A. M.
June 15, Thursday, ..Registration of Candidates for Admission: College and Departments of Law and *Medicine, 9 A. M. to 11 A. M.
June 15, Thursday,, ..Entrance Examinations begin: College and Departments of Law, Medicine and Veterinary Medicine, 11 A. M.

SUMMER RECESS.

Sept. 18, Monday, ..Competitive Examination for Dental Scholarships.
Sept. 22, Friday, ..Registration of Candidates for Admission: College, and Departments of Law and *Medicine, 9 A. M. to 11 A. M.
Sept. 22, Friday, ..Entrance Examinations begin: College, and Departments of Law and Medicine, 11 A. M.
Sept. 25, Monday, ..Competitive Examination for Medical Scholarships, 10 A. M.
Sept. 25, Monday, ..Entrance Examinations: Department of Veterinary Medicine, 10 A. M.
Sept. 26, Tuesday, ..Entrance Examinations: Department of Dentistry, 10 A. M.
Sept. 29, Friday, ..Session begins: College, 10 A. M.
Sept. 30, Saturday, ..First Term begins: Departments of Law and Philosophy.
Oct. 2, Monday, ..Session begins: Departments of Medicine, Dentistry and Veterinary Medicine, 12 M.
Nov. 29, Wednesday, ..Thanksgiving Recess begins: College, 5 P. M. Departments of Law and Medicine, 6.30 P. M. Departments of Dentistry and Veterinary Medicine, 5.30 P. M.
Dec. 2, Saturday, ..Thanksgiving Recess ends: College, 9 A. M.
Dec. 4, Monday, ..Thanksgiving Recess ends: Department of Law, 9 A. M. Departments of Medicine, Dentistry and Veterinary Medicine, 10 A. M.
Dec. 22, Friday, ..Christmas Recess begins: College, 5 P. M. Department of Law, 6 P. M. Departments of Medicine, Dentistry and Veterinary Medicine, 6.30 P. M.

* Registration of candidates for admission *by examination* only.

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UNIVERSITY OF PENNSYLVANIA.

HISTORICAL SKETCH.

A pamphlet, called: *Proposals Relative to the Education of Youth in Pennsylvania*, written in 1749 by Dr. FRANKLIN, led to an association by certain citizens of Philadelphia, for the purpose of raising to the dignity of an Academy the Charitable School which had been established in 1740, and which was then struggling under a debt upon the building erected for its use and the accommodation of the celebrated preacher Whitefield. A Board of Trustees was constituted, to whom the school and buildings were transferred upon their assuming the original trusts, and in 1751 the Academy, consisting of an English, a Mathematical, and a Latin School, each under a Master, with subordinate tutors and ushers, was formally opened. So successful was the undertaking that in two years the Trustees applied to the Proprietaries for a Charter, which was thus granted:—

THOMAS PENN and RICHARD PENN, true and absolute proprietaries and governors in chief of the province of Pennsylvania and counties of Newcastle, Kent and Sussex, on Delaware, To all persons to whom these presents shall come, greeting: *Whereas*, the well-being of a society depends on the education of their youth, as well as, in great measure, the eternal welfare of every individual, by impressing on their tender minds principles of morality and religion, instructing them in the several duties they owe to the society in which they live, and one towards another, giving them the knowledge of languages, and other parts of useful learning necessary thereto, in order to render them serviceable in the several public stations to which they may be called. *And whereas*, it hath been represented to us by Thomas Lawrence, William Allen, John Inglis, Tench Francis, William Masters, Lloyd Zachary, Samuel M'Call, junior, Joseph Turner, Benjamin Franklin, Thomas Leech, William Shippen, Robert Strettell, Philip Syng, Charles Willing, Phineas Bond, Richard Peters, Abraham Taylor, Thomas Bond, Joshua Maddox, William Plumsted, Thomas White, William Coleman, Isaac Norris, and Thomas Cadwalader, of our city of Philadelphia, gentlemen, that for the erecting, establishing, and maintaining an academy within our said city, as well to instruct youth

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for reward, as poor children whose indigent and helpless circumstances demand the charity of the opulent part of mankind, several benevolent and charitable persons have generously paid, and by subscriptions promised hereafter to pay, into their hands as trustees, for the use of the said academy, divers sums of money, which sums already paid, they, the said trustees, have expended in the purchase of lands well situated, and a building commodious for the uses aforesaid, within our said city in maintaining an academy there as well for the instruction of poor children on charity, as others whose circumstances have enabled them to pay for their learning, for some time past, and in furnishing the said academy with books, maps, mathematical instruments, and other necessaries of general use therein, according to the intentions of the donors. *And whereas*, the said trustees, to facilitate the progress of so good a work, and to perfect and perpetuate the same, have humbly besought us to incorporate them and their successors.

Now know ye, That we favoring such pious, useful, generous, and charitable designs, hoping, through the favor of Almighty God, this academy may prove a nursery of virtue and wisdom, and that it will produce men of dispositions and capacities beneficial to mankind in the various occupations of life; but more particularly suited to the infant state of North America in general, and for other causes and considerations us hereto specially moving, *have* granted, ordained, declared, constituted, and appointed, and by these presents *we do* for us, our heirs, and successors grant, ordain, declare, constitute, and appoint, That the said Thomas Lawrence, and others, as before recited, and such others, as shall be from time to time chosen, nominated or elected in their place and stead, shall be one community, corporation and body politic, to have continuance for ever, by the name of The Trustees of the Academy and Charitable School in the Province of Pennsylvania. . . . . .

In witness whereof, we have caused these our letters to be made patent; in the twenty-seventh year of the reign of our sovereign lord, George the second, who now is king of Great Britain, France, and Ireland, etc., and in the year of our Lord, one thousand seven hundred and fifty-three.

Under the skilful training of the learned Rev. William Smith, the highest class in this Academy attained that proficiency which, in a College course, would entitle it to a Degree. Accordingly, two years later the Proprietaries were again petitioned to convert the Academy into a College with the power of conferring collegiate degrees. The petition was granted substantially as follows:

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THOMAS PENN and RICHARD PENN, true and absolute proprietaries of the province of Pennsylvania, etc., to all persons to whom these presents shall come, greeting :

And whereas, the said trustees have . . . . . represented, That since our granting our said recited charter, the academy therein mentioned, by the blessing of Almighty God, is greatly improved, being now well provided with masters, not only in the learned languages, but also in the liberal arts and sciences, and that one class of hopeful students has now attained to that station in learning and science, by which, in all well-constituted seminaries, youth are entitled to their first *degree*. *Now know ye also*, That we do hereby, for us, our heirs and successors, give and grant full power and authority to the said trustees and their successors, ... to constitute and appoint a Provost and Vice-Provost of the said college and academy, who shall be severally named and styled Provost and Vice-Provost of the same. And also to nominate and appoint professors in all the liberal arts and sciences, the ancient languages and the English tongue, which Provost, Vice-Provost, and Professors, so constituted, and appointed, shall be known and distinguished as one body and faculty, by the name of *The Provost, Vice-Provost, and Professors of the College and Academy of Philadelphia, in the Province of Pennsylvania;* and by that name shall be capable of exercising such powers and authorities as the said trustees and their successors shall think necessary to delegate to them, for the discipline and government of the said college, academy, and charitable school: *Provided always*, That the said trustees, the Provost and Vice-Provost, and each Professor, before they shall exercise their several and respective powers or authorities, offices, and duties, do and shall take and subscribe the three first written oaths appointed to be taken and subscribed, in and by one act of Parliament, passed in the first year of the reign of our late sovereign lord, George the first, intituled, An Act for the further security of his Majesty's Person and Government; and the Succession of the Crown in the Heirs of the late Princess Sophia, being protestants, and for extinguishing the hopes of the pretended Prince of Wales, and his open and secret abettors; and shall also make and subscribe the declaration appointed to be made and subscribed by one other act of parliament, passed in the twenty-fifth year of the reign of king Charles the second, intituled, An Act for preventing dangers which may happen, etc. . . . . excepting only the people called Quakers, who, upon taking, making, and subscribing the affirmations and declarations appointed to be taken, made, and subscribed, by the acts of General Assembly of the province of Pennsylvania, to

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qualify them for the exercise of civil offices, shall be admitted to the exercise of all and every the powers, authorities, offices, and duties above mentioned, any thing in this provision to the contrary notwithstanding, ... *And we do hereby*, at the desire and request of the said trustees, constitute and appoint the Reverend William Smith, M. A., to be the first and present Provost of the said college and academy, and the Reverend Francis Allison, M. A., to be the first and present Vice-Provost of the same. . . . . *And we do further, for us, our heirs and successors, give and grant to the trustees of the said college and academy*, That for animating and encouraging the students thereof to a laudable diligence, industry, and progress in useful literature and science, they and their successors, met together on such day or days as they shall appoint for that purpose, shall have full power and authority, by the provost, ... to admit any of the students within the said college and academy, or any other person or persons meriting the same, to any degree or degrees, in any of the faculties, arts, and sciences, to which persons are usually admitted, in any or either of the universities or colleges in the kingdom of Great Britain. . . . . *Provided always*, and it is hereby declared to be our true meaning and express will, That no student or students, within the said college and academy, shall ever, or at any time or times hereafter, be admitted to any degree or degrees, until such student or students have been first recommended and presented as worthy of the same, by a written mandate, given under the hands of at least thirteen of the trustees of the said college and academy. . . . .

In testimony whereof, we have caused these our letters to be made patent, and the great seal of our said province to be hereunto affixed . . . . this fourteenth day of May, in the twenty-eighth year of the reign of our sovereign lord, George the second, king of Great Britain, France, and Ireland, etc., and in the year of our Lord, one thousand seven hundred and fifty-five.

The First Commencement was held May 17, 1757, when Paul Jackson, Jacob Duché, Francis Hopkinson, Samuel Magaw, Hugh Williamson, James Latta, and John Morgan received the Degree of Bachelor of Arts. In the agitated times that followed, during the wars with the French, the Provost, Mr. Smith, opposed so vehemently the non-resistance policy of the legislature of Pennsylvania, that by an arbitrary stretch of power he was thrown into prison. In faithfulness to his duties as Provost, however, he received his classes in gaol, and continued his instructions to them there while still a prisoner. Finally he was set at liberty, for the purpose of going to England to make a personal appeal to the king, and his kindly

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reception there was not lessened by the strain to which his loyalty at home had been put. Oxford conferred on him the Degree of Doctor of Divinity. On his return home so highly did his fellow-citizens rate his influence abroad, that when in 1761 the Trustees were hard bestead, they sent him back to England to raise funds for an endowment. It happened that King's College (now Columbia) in New York was in similar straits, and had resolved on similar efforts. The two commissioners met in England and amicably resolved to "divide the land between them" and share the proceeds. Through the influence of the Archbishop of Canterbury they received a circular letter from the king to all the churches, and succeeded in raising a very considerable endowment for each college.

On Dr. Smith's return, as it appears on the minutes of the 14th of June, 1764, a letter was received from the Archbishop of Canterbury, Thomas and Richard Penn, and the Rev. Samuel Chandler, D. D., addressed to the trustees, in which the trustees are congratulated on the success of Dr. Smith's, the Provost's, collection in England, and advised of what would be further necessary to the due improvement of the collection and the future prosperity of the institution. "That the institution was originally founded and carried on for the general benefit of a mixed body of people—that on the king's brief it is represented as a seminary that would be of great use for securing capable instructors and teachers, as well for the service of the society for propagating the gospel in foreign parts, as for other protestant denominations in the colonies.—That at the time of making the collection, the provost was a clergyman of the Church of England—the vice-provost, a Presbyterian—a principal professor, a Baptist, with other useful professors and tutors, all carrying on the education of youth with great harmony, and people of various denominations have heretofore contributed liberally and fully.—That jealousies had arisen lest the foundation should be narrowed, and some party exclude the rest, or put them on a worse footing than they have been or were at the time of the collection, which would be unjust and productive of contentions unfriendly to religion. It was therefore recommended to the trustees, by the writers of the letter (who had a principal share in procuring the collection), to make a fundamental rule or declaration, to prevent inconvenience of this kind, and in doing which, they were advised that the more closely they kept in view the plan on which the seminary was at the time of the royal brief, and on which it was carried on from the beginning, so much the less cause would any party have to be dissatisfied."

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A committee having been appointed to frame a fundamental *Resolve* or declaration, in consequence of the letter, the following was reported and adopted:

"The trustees being ever desirous to promote the peace and prosperity of this seminary, and to give satisfaction to all its worthy benefactors, have taken the above letter into their serious consideration, and perfectly approving the sentiments therein contained, do order the same to be inserted in their books, that it may remain perpetually *declaratory* of the present *wide* and excellent plan of this institution, which hath not only met with the approbation of the great and worthy personages above mentioned, but even the royal patronage of his majesty himself. They further *declare* that they will keep this plan closely in their view, and use their *utmost endeavors* that the same *be not narrowed*, nor the members of the church of England, or those dissenting from them (*in any future election to the principal offices mentioned in the aforesaid letter*,) be put on *any worse footing* in this seminary, than they were *at the time of obtaining the royal brief*. They subscribe this with their names, and ordain that the same be read and subscribed by every new trustee that shall hereafter be elected, before he takes his seat at the board."

Perhaps no more striking instance can be given of the distortion to which men's minds were subject in those days of political commotion, than the fact that in 1779 this resolution was construed by the Legislature into a "narrowing of the foundation," and seized as a pretext for confiscating all the rights and properties of the College, which were bestowed upon a new organization called in its charter the "Trustees of the University of the State of Pennsylvania." Ten years later, these rights and properties were all restored, and in 1791 an act was passed amalgamating the old College in the new University, as follows:

WHEREAS, the trustees of the University of the State of Pennsylvania, and the trustees of the College, Academy, and Charitable School of Philadelphia, in the commonwealth of Pennsylvania, by their several petitions have set forth, that they have agreed to certain terms of union of the said two institutions, which are as follows:

First: That the name of the institution be "*The University of Pennsylvania*," and that it be stationed in the city of Philadelphia.

Second: That each of the two boards shall elect, from among themselves, twelve persons, who, with the governor for the time being,

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shall constitute the board of trustees of the University of Pennsylvania; and that the governor shall be president.

* * * * * * * *

And the said trustees by their several petitions have prayed, that a law may be passed to enable them to carry the said terms of union into effect, and to incorporate them in one body, according to the purpose and intention expressed in the said terms of union.

Sec. 1. *Be it therefore enacted by the Senate and House of Representatives of the commonwealth of Pennsylvania in general assembly met, and it is hereby enacted by the authority of the same*, That, in pursuance of the second article of the said terms of union, the trustees of the University shall elect twelve persons from among themselves to be trustees of the said University after the union, and shall certify the names of the said twelve persons, so elected, to the governor of this commonwealth, on or before the first day of December next; and that the trustees of the said College, Academy, and Charitable School, shall elect twelve persons from among themselves, to be trustees of the said University after the union, and shall certify the names of the said twelve persons, so elected, to the governor of this commonwealth, on or before the first day of December next.

Sec. 2. *And be it further enacted by the authority aforesaid*, That from and after such certificates of the elections being so made to the governor, as aforesaid, the said twenty-four persons so elected and certified, together with the governor for the time being, who shall always be president, and their successors duly elected and appointed, as herein and by the said terms of union is directed, be, and they are hereby made and constituted a corporation and body politick, in law and in fact, to have continuance forever by the aforesaid name, style, and title of "The Trustees of the University of Pennsylvania," and that the said University shall at all times be stationed in the city of Philadelphia.

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The Course in Finance and Economy.
The Courses in Biology.
The Course in Music.

(IN THE TOWNE SCIENTIFIC SCHOOL.)

The Courses in Architecture.
The Courses in Science and Technology.

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The Courses in Mechanical and Electrical Engineering.
The Course in Civil Engineering.
The Course in Chemistry.
The Course in Chemical Engineering.
(The Courses for Teachers.)

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The Department of Law.
The Department of Medicine.
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GENERAL INFORMATION.*

The College Faculty conducts the following courses of study:

(IN THE SCHOOL OF ARTS.)

I. The Courses in Arts and Science.
II. The Course in Finance and Economy.
III. The Courses in Biology.
IV. The Course in Music.

(IN THE TOWNE SCIENTIFIC SCHOOL.)

V. The Courses in Architecture.
VI. The Courses in Science and Technology.
VII. The Courses in Mechanical and Electrical Engineering.
VIII. The Course in Civil Engineering.
IX. The Course in Chemistry.
X. The Course in Chemical Engineering,
and also THE COURSES FOR TEACHERS.

I. THE COURSES IN ARTS AND SCIENCE.

The Courses in Arts and Science comprise a number of definite courses, embracing, in all cases, in the lower years prescribed studies; in the upper years prescribed studies, elective groups and a fixed proportion of free electives.

There are four courses open to Freshmen and Sophomores, which differ mainly in the character and amount of language study. The languages taken in the Freshman and Sophomore years are required for admission. These are: in the first course, Greek and Latin; in the second, Latin and German; in the third, Latin and French; and in the fourth, French and German. All four courses include English, History and Mathematics in the Freshman year; and English, Chemistry, Physics and Mathematics or History in the Sophomore year.

Each student selects at the beginning of Junior year a group of studies which he will pursue for the last two years of his course.

* For any special information concerning the College, address the Dean, Josiah H. Penniman, College Hall, University of Pennsylvania.

The Dean is in his office daily, from 9 A. M. to 12 M. The Registrar, Edward W. Mumford is in the Dean's office daily, from 9 A. M. to 4 P. M.

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There are fifteen of these groups, each containing two subjects, to each of which, during Junior year, four hours per week are assigned. The groups offered are: Greek and Latin, Latin and French, Latin and German, German and French, German and English, French and English, History and English, Philosophy and History, Economics and History, Physics and Mathematics, Mathematics and Astronomy, Chemistry and Physics, Biology and Chemistry, Botany and Zoölogy, Geology (Mineralogy) and Chemistry. The student is permitted to select in addition a two-hour course from a list of free electives. The studies prescribed in addition to the group subjects and the free electives are: English, Logic and Ethics.

In Senior year the student continues the studies of his group, giving to each five hours per week, and selects courses to the extent of five hours per week from the free electives. The degree of Bachelor of Arts is conferred upon all students who have completed the last two years in any of the groups, *after having taken the first two years in the course containing Greek and Latin.* Graduates of the other courses receive the degree of Bachelor of Science.

II. THE COURSE IN FINANCE AND ECONOMY.

(THE WHARTON SCHOOL.)

The course in Finance and Economy extends through four years, and leads to the degree of Bachelor of Science in Economics. The studies are all prescribed, and are grouped under the heads of Public Law and Politics, Business Law and Practice, Economics and Social Science, Journalism, History, Logic and Ethics, English, German and Mathematics.

III. THE COURSES IN BIOLOGY.

The four-year course in Biology leads to the degree of Bachelor of Science in Biology. It includes class lectures and laboratory work in Physics, Chemistry, and the Natural Sciences, as well as studies in Mathematics, Literature and the Languages. As this course is devised especially to embrace from its beginning natural history studies, students will not be admitted to advanced standing unless they have done the necessary amount of similar work elsewhere. The aim of the course is to qualify students for work as teachers or investigators in Biology.

The two-year course in Biology includes thorough work in Chemistry and Physics, General Vertebrate and Invertebrate Zoölogy, Mammalian and Human Anatomy, Comparative Histology, Embryology and Physiology, and the Morphology, Physiology and Tax-

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onomy of Plants. Special attention is given to the bearing of the above branches on medical science. Students who complete this course satisfactorily are entitled to a Certificate of Proficiency. This certificate is received by the Medical Faculty in lieu of the regular examinations for entrance to the Department of Medicine, and permits the holder, after examination, to omit certain branches prescribed for the first year. The certificate also entitles women students to certain concessions granted by the Women's Medical College of Philadelphia.

Both courses in Biology are open to men and women alike.

IV. THE COURSE IN MUSIC.

This course extends over three years, and leads to a certificate of study. It is open to special students only, without distinction of sex. The conditions under which the degree of Bachelor of Music is conferred are given later in the fuller description of this course.

V. THE COURSES IN ARCHITECTURE.

The four-year course in Architecture offers a full curriculum of technical studies, and leads to the degree of Bachelor of Science in Architecture. The course covers the technical study of architecture in its artistic, historic and scientific phases, and includes the usual number of liberal studies in literature and science. Graduates of other colleges are admitted to advanced standing in this course under conditions named in *Admission to College*. A special course of two years, covering the advanced technical work of the four-year course, is open to candidates who have had two years' experience in the office of a practising architect, or who have had such other technical training as may, in the judgment of the Professor of Architecture, be considered an equivalent.

A three-year course in Interior Decoration offers a course of study independent of that of the regular course in Architecture, and is open to men and women alike. It provides the technical training necessary as a preparation for the profession to which it leads.

VI. THE COURSES IN SCIENCE AND TECHNOLOGY.

These courses cover five years—two years of general literary and scientific study, and three years devoted chiefly to technical training in one of the following subjects: Chemistry, Civil Engineering, and Mechanical Engineering. Students in regular standing receive at the end of the Senior year the general degree of Bachelor of Science, and at the end of the Post-Senior year the degree of Mas-

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ter of Science. The technical degree appropriate to the course pursued may be conferred upon Masters of Science of two years' standing, who have made satisfactory progress in their professions, and have presented an acceptable thesis.

The work of the Freshman and Sophomore years includes English, History, Mathematics, Drawing, Chemistry, Physics, Hygiene, and one modern language, German or French. These subjects are all prescribed. In the years devoted to technical instruction are included courses in English, the Modern Languages, and Political Economy, with the necessary instruction in pure and applied Mathematics, and in the scientific branches allied to the principal subject of the course.

VII. THE COURSES IN MECHANICAL AND ELECTRICAL ENGINEERING.

These courses lead to the degree of Bachelor of Science in Mechanical and Electrical Engineering, respectively. They contain a certain amount of liberal study in literature and science, with thorough instruction in professional work. Students are not permitted to change to these courses from the other courses in the College, as the technical work begins in the first year; and new students are admitted to advanced standing only on condition that they have done the requisite amount of similar work elsewhere. Each course covers a period of four years.

The description of these courses will apply to Courses VIII, IX, X, following.

VIII. THE COURSE IN CIVIL ENGINEERING.

This course leads to the degree of Bachelor of Science in Civil Engineering. See Course VII.

IX. THE COURSE IN CHEMISTRY.

This course leads to the degree of Bachelor of Science in Chemistry. See Course VII.

X. THE COURSE IN CHEMICAL ENGINEERING.

This course leads to the degree of Bachelor of Science in Chemical Engineering. See Course VII.

Fuller descriptions of the different courses are given on pages 72 *et seq.* For a detailed enumeration of the studies, and a description of all the instruction offered by the College Faculty, see index, under heading, *The College—Subjects of Instruction.*

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STATUS OF STUDENTS.

(Full, Special and Partial.)

A student in the College may be a Full, Special or Partial Student.

A FULL STUDENT is one who pursues in manner and form, as prescribed in the Catalogue, one of the courses leading to a degree. A SPECIAL STUDENT is one who pursues a stated course not leading to a degree, with a view to a Certificate of Proficiency upon the completion of that course. A PARTIAL STUDENT is one who, under certain regulations, is permitted to pursue such individual subjects as he may be competent to take.

Attention is called to the fact that a student is not permitted to become a Special or Partial Student on account of inability to keep up with his class in a regular course. For a list of the duly authorized special courses, and for the conditions under which Special and Partial Students are admitted, see pages 69-71.

DIVISION OF SESSIONS.

The College year is divided into two terms of about eighteen weeks each. The first term began in 1898, on September 23, at 10 o'clock, A. M. The second term will begin on Februray 6, 1899, at 9 o'clock, and will end with Commencement on June 14. The examinations for entrance will begin on June 15 and September 22. The next College year will begin on September 29, 1899, at 11 A. M.

TERM EXAMINATIONS.

Examinations are held at the close of each term. Students are given a term "standing " in each study pursued during that term. These "standings" are *d* (distinguished), *g* (good), *p* (passed), *n* (not passed, or deficient) and *a* (absent). If a student is deficient in one or more subjects, he is attached to his class conditionally, until the deficiency or deficiencies are made up. But if a student be found deficient in more than one-third of his work in any term, he is put back one year in his course, or dropped from the rolls, at the option of the authorities.

THESES.

No theses are required of candidates for the Bachelor's degree conferred in the Courses in Arts and Science.

The theses required of candidates for the Bachelor of Science, Master of Science and Technical Degrees must be sent to the Dean on or before May 1 in each year.

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DEGREES.

The Degree of *Bachelor of Arts* (*A. B.*) is conferred on graduation upon Students in the Arts and Science courses who have taken Latin and Greek during the Freshman and Sophomore years.

The Degree of *Bachelor of Science* (*B. S.*) is conferred on graduation (1) upon students in the Arts and Science courses who have not taken Latin and Greek during the Freshman and Sophomore years; (2) upon students in the Towne Scientific School, who have successfully completed the first four years of the course in Science and Technology.

The Degree of *Master of Science* (*M. S.*) is conferred upon students who complete satisfactorily the work of the Post-Senior year in the course in Science and Technology.

The Degree of *Bachelor of Science in Economics* is conferred on graduation upon students in the course in Finance and Economy.

The Degree of *Bachelor of Science in Chemistry, Architecture, Civil Engineering, Chemical Engineering, Mechanical Engineering, Electrical Engineering* or *Biology* is conferred on students who complete the four-year course in one of these subjects.

The Technical Degree of *Civil Engineer* (*C. E.*) or *Mechanical Engineer* (*M. E.*) is conferred (1) upon Masters of Science of two years' standing who have taken the Post-Senior year in College, and (2) upon Baccalaureate graduates of the four-year courses in these subjects of three years' standing, who have successfully pursued their professions and presented an original thesis.

The Technical Degree of *Electrical Engineer* (*E. E.*) is conferred upon graduates of three years' standing of the four-year course in this subject, who have successfully pursued their profession and presented an original thesis.

SCHOLARSHIPS.

The Committee on Scholarships of the College shall carefully examine the credentials of all applicants, informing themselves especially as to their moral character and scholarly standing. They shall then recommend to the Board of Trustees each year eight candidates for scholarships in the School of Arts and eight for the Towne Scientific School. All candidates for scholarships in the College must have their applications and references in the hands of the Dean on or before the 15th of May preceding the academic year in which they desire to be admitted. All candidates for scholarships must present themselves for the usual entrance examinations in

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June. The Committee shall base its decisions partly upon the results attained in these examinations, and shall report its recommendations to the Trustees as soon as possible thereafter.

I. THE PENN SCHOLARSHIPS, two in number, are filled by the Governor of the State from time to time as vacancies occur. They exist by virtue of a privilege reserved by Thomas Penn, Proprietary of Pennsylvania.

II. THE PUBLIC SCHOOL PRIZE SCHOLARSHIPS.—Under an agreement with the City of Philadelphia, fifty free scholarships have been permanently established in the University for the benefit of students from the public schools of the city. Of these fifty, THE BENJAMIN FRANKLIN SCHOLARSHIPS, three in number, were endowed by the late Dr. William Pepper, and the SAMUEL V. MERRICK SCHOLARSHIP by J. Vaughan Merrick, Esq. The candidates for these scholarships are examined by the Board of Public Education, and the scholarships, according to the number of vacancies, are granted to those who reach the highest grade in their examination, provided that grade be at least sixty-five per cent. All inquiries concerning the city scholarships should be addressed to the Chairman of the Committee on University of the City Board of Public Education, 713 Filbert Street.

III. THE BAIRD SCHOLARSHIP, founded in 1889 by Mrs. Matthew Baird, provides free tuition for one deserving student.

IV. THE MUHR SCHOLARSHIPS, founded in 1895 by the late Simon Muhr, provide free tuition for three deserving students.

V. THE PENNSYLVANIA PUBLIC HIGH SCHOOL SCHOLARSHIPS.—In addition to the Philadelphia City Scholarships, five free competitive scholarships shall be thrown open yearly to students from the graduating classes of Public High Schools in Pennsylvania outside of Philadelphia. The candidates must forward to the Dean of the College on or before the 15th day of May their applications and credentials, and must present themselves for the usual entrance examinations in the June following. All examination papers must be marked as in competition for the Pennsylvania Scholarships. The examinations may be taken at any place at which the University holds examinations through its representatives. Those who win Pennsylvania Scholarships shall have the privilege of entering any course in the School of Arts or the Towne Scientific School.

PRIZES.

The following prizes are offered to Freshmen for excellence in the entrance examinations:

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1. THE B. B. COMEGYS PRIZES of twenty-five dollars each; one for the best special examination in the Latin required for admission to the Courses in Arts and Science; and one for the best special examination in the Greek required for admission to the same courses.

2. THE EUGENE DELANO PRIZE of fifty dollars for the best examination in the French and German required for entrance to College.

3. A prize of fifty dollars, offered by the CLASS of 1880, for the best examination in Mathematics by a candidate for admission to the Courses in Arts and Science.

The following prizes are offered annually:

NOTE.—*All essays in competition for prizes must be handed to the Dean on or before May 1 in each year, must be signed with a fictitious name, and be accompanied by a sealed envelope, on which is written the fictitious name and in which is enclosed the writer's real name and address. No prize will be awarded unless the work done for it reaches a high standard of excellence. Unless otherwise stated, the prizes are open to regular students only.*

I. THE FACULTY PRIZES:

1. A prize of thirty dollars for the best Essay in Intellectual and Moral Philosophy by a member of the Senior Class. Subject: *The Relation of Butler's Ethics to those of Aristotle.*

2. A prize of ten dollars for the best examination by a member of the Freshman Class on Greek Prose Composition with the Accents.

3. A prize of thirty dollars to a member of the Senior Class, for the most meritorious work in the German Language and Literature over and above the regular course.

4. A prize of thirty dollars to a member of the Senior Class for the most meritorious work in the French Language and Literature over and above the regular course.

5. A first prize of fifteen dollars, and a second prize of ten dollars, for the best examination on the *Lectures on Quaternions* given to the voluntary Junior Class.

6. A prize of thirty dollars for the best Essay in History and English Literature by a member of the Senior Class. Subject: *The Life and Adventures of Sir Thomas Stukeley.*

7. A prize of twenty dollars for the best Essay by a member of the Junior Class. Subject: *The Letters of Lady Mary Wortley Montague.*

8. A prize of fifteen dollars, and a second prize of ten dollars, for the best Declamation by a member of the Sophomore Class, the contest being open to the public.

9. A first prize of twenty-five dollars, and a second prize of fifteen

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dollars, for the best and second best preparations illustrating the anatomy of any vegetable. Open only to students in the Biological courses in Botany. The conditions are as follows: (*a*) Ten alcoholic preparations, illustrating stages in the germination and seedling growth of at least seven plants; (*b*) A complete set of microscopic slides, illustrating the year's work in Botany; (*c*) An identified collection of the *Algæ* of Fairmount Park, prepared as dried specimens, and mounted as slides.

10. A first prize of twenty-five dollars, and a second prize of fifteen dollars, for the best and second best preparations illustrating the anatomy or embryology of any animal. Open only to students in the Biological courses in Zoölogy. The conditions are as follows: (*a*) Four dissections illustrating the anatomy of any simple Invertebrate studied in *Biology 3* (see later pages); (*b*) Four dissections illustrating the comparative neurology of four Invertebrate types; (*c*) A complete series of mounted slides illustrating the histology or embryology of any animal; (*d*) Three preparations of distinct organic systems of from one to three species of Invertebrates.

11. A prize of ten dollars to the member of the Sophomore Class who shall pass the best special examination in sight reading of Latin.

12. A prize of ten dollars to the member of the Sophomore Class who shall pass the best special examination in sight reading of Greek.

13. Two Debating Prizes, established by William West Frazier, Jr.: a first prize of seventy-five dollars and a second prize of twenty-five dollars, to be awarded in a public debating contest, governed by the following conditions:

a. Any student of the University of Pennsylvania who is a candidate for a degree may become a competitor.

b. A committee appointed annually by the Provost of the University shall select from the whole body of competitors, in such manner as it may deem best, the debaters, not to exceed ten in number, who shall take part in the final competition.

c. The question for debate shall be selected by the Provost of the University, and shall be publicly announced by him at least four weeks before the date set for the final competition.

d. The prizes shall be awarded by a committee of three judges, not officers of instruction of the University, appointed by the Provost, to those competitors who shall be deemed by them the most effective debaters, account being taken both of thought and its expression.

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II. GENERAL PRIZES:

1. THE HENRY REED PRIZE, founded by the Alumni of the College, for the best English Essay by a member of the Senior Class, entitles the successful competitor to one year's interest on six hundred dollars, and to a diploma of Merit. Essays in competition for this prize are handed to the Dean for transmission to a committee of the Board of Trustees, by whom the prize is awarded. Subject: *Thomas Lovell Peacock.*

2. A prize for the best, and a prize for the second best, Latin Essay by a member of the Graduating Class, offered by the Society of the Alumni. The first prize entitles the successful competitor to one year's interest on nine hundred dollars; and the second prize to a fixed sum of twenty-five dollars.

3. A prize for the best, and a prize for the second best, Original Declamation by a member of the Junior Class, offered by the Society of the Alumni. The first prize of twenty-five dollars, and the second prize of fifteen dollars, are awarded by a committee of Judges at the Junior Exhibition.

4. A prize founded by HENRY LABARRE JAYNE, of the class of 1879, for the best English Composition by a member of the Freshman Class. It entitles the successful competitor to one year's interest on two hundred dollars. Subject: *John Boroughs and the Literary Study in Nature.*

5. THE JOSEPH WARNER YARDLEY PRIZE, founded by the class of 1877 in memory of their classmate, for the best Thesis in Political Economy by a member of the Senior Class. It entitles the successful competitor to one year's interest on five hundred dollars. Subject: *The Economic Benefits of Territorial Expansion.*

6. A prize founded by D. VAN NOSTRAND, ESQ., for the member of the Junior Class in Civil Engineering who attains the highest general average of scholarship. It consists of certain technical works.

7. A prize founded by the PHI KAPPA SIGMA FRATERNITY in honor of their founder, Samuel Brown Wylie Mitchell, M. D., of the class of 1852, for the best work in English Composition done during the year by a member of the Sophomore Class. It entitles the successful competitor to one year's interest on four hundred dollars.

8. THE ASSAYERS AND MINERS GANGUE offers two prizes of the value of twenty-five dollars each, in books or apparatus, to members of the Post-Senior Class.

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9. THE "SONS OF THE AMERICAN REVOLUTION" PRIZE.—The National Society of the Sons of the American Revolution offer annually a Silver Medal for the best Essay on some subject connected with American Revolutionary History. The Essay receiving the Medal will be sent to the officers of the Society, and will come in competition with the Prize Essays from other colleges and universities, the best of these receiving a Gold Medal. Open only to Juniors. Subject: *The Principles fought for in the Revolution.*

10. THE GEORGE ALLEN MEMORIAL PRIZES, founded by JOSEPH G. ROSENGARTEN, ESQ., of twenty dollars each, are offered to members of the Junior Class taking the Greek and Latin courses as follows: In Greek, for the best examination on the *Oration of Demosthenes on the Crown,* read with the professor as an extra subject; and in Latin, for the best examination upon selections from Latin Literature of the Empire (Seneca Rhetor, Quintilian, Pliny the Younger and Suetonius), to be read with the Professor of Classical Philology as an extra subject.

Second prizes of ten dollars each are offered by the Faculty in both these branches.

11. THE "SONS OF THE REVOLUTION" PRIZE.—The Pennsylvania Society of Sons of the Revolution offers annually a first prize of seventy-five dollars, and a second prize of twenty-five dollars, for the best and second best essays on some subject connected with the Revolutionary Period in the State of Pennsylvania. Subject to be chosen by competitors after consultation with the Professor of American History. Open to all students.

12. The Kappa Kappa Gamma Fraternity offers its Table at the Woods' Holl Laboratory, Mass., for the summer of 1899, as a prize to students in the courses in Biology. Any student desiring to compete should notify the Dean, from whom further information may be obtained.

13. THE WILLIS TERRY PRIZES.—The following prizes, open only to students in the Course in Finance and Economy, have been established by HENRY C. TERRY, ESQ., as a memorial to his son, WILLIS TERRY, a graduate of the class of 1896:

a. A prize of twenty dollars for the student of the Freshman Class who shall have the best standing for the year.

b. A prize of twenty dollars for the student of the Sophomore Class who shall have the best standing for the year.

c. A prize of twenty dollars for the student of the Junior Class who shall have the best standing for the year.

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d. A prize of twenty dollars for the student of the Senior Class who shall have the best standing for the year.

The recipient of the prize in any year shall not be eligible for the prize in succeeding years.

e. A prize of one hundred and twenty dollars, to be awarded annually to a student of the Senior Class; the recipient to be designated as the WILLIS TERRY Graduate Scholar for the following year. This prize is awarded for special research and investigation upon a subject to be determined by the Committee on Economics, and relating to the financial and industrial conditions of the United States. Competition for the prize is limited to regular students, candidates for a degree, who shall have gained a WILLIS TERRY prize in the Freshman, Sophomore or Junior years, or who shall have received honorable mention for such prizes. Until the year 1900, the Committee on Economics shall designate at the opening of the Senior year those students who, upon the basis of their general record, are eligible for the competition.

The subject for the year 1899 is: *The Development of Manufactures in the United States Since 1860.*

14. THE FRAZIER PRIZE.—GEORGE H. FRAZIER, Esq., of the class of 1887, offers annually a prize of a standard work in literature, to be chosen by him, and of a value of one hundred dollars, to the student in the College of the University of Pennsylvania, who, being a member of the Foot-ball team, Base-ball team, Track team, or of the Crew, shall attain the highest standing in scholarship.

FEES.

The tuition fee in the College is one hundred and sixty (160.00) dollars per annum, excepting for the last three years in the course in Science and Technology, and for the four-year technical courses in Chemistry, Civil, Mechanical, Electrical and Chemical Engineering, when the fee is two hundred (200.00) dollars per annum. For the course in Music the fee is thirty (30.00) dollars per annum. The fee for the Special course in Interior Architecture is fifty (50.00) dollars per annum.

Each student is required to deposit on entering College ten (10.00) dollars to cover loss of books, keys, etc., breakage in the laboratories, or damage to University property. Regular students electing the course in Science and Technology, deposit fifteen (15.00) dollars additional at the beginning of the Junior year. Students in the four-year technical course in Chemistry, and in Civil,

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Mechanical, Electrical or Chemical Engineeering are required to deposit twenty-five (25.00) dollars upon entrance. Special students in these courses deposit twenty (20.00) dollars on entrance. Any balance is returned on graduation or withdrawal from College.

Tuition fees are payable to the Registrar of the College, E. W. Mumford. No bills are mailed for tuition fees. Payment will be accepted, and receipts given, at the office, College Hall. The first term fees are due October 1, 1898. To any fee not paid before November 1, $2.50 will be added. The second term fees are due February 1, 1899, and to any such fee not paid before March 1, $2.50 will be added. A student who has not paid his tuition fees in full will receive no credit for his work, and will not be admitted to examinations.

A graduation fee of twenty (20.00) dollars is charged to each candidate for a Baccalaureate Degree, and of ten (10.00) dollars to each candidate for the Degree of Master of Science. A like fee of ten (10.00) dollars is charged to each candidate for the Technical Degree of Civil Engineer, Mechanical Engineer or Electrical Engineer. The fee for Certificates of Proficiency in Special Courses is ten (10.00) dollars. *Graduation and Certificate fees must invariably be paid before Commencement Day in each year.*

ACCOMMODATIONS AND EXPENSES.

For detailed information concerning the University dormitories, see index.

Students who prefer to take board and lodging elsewhere than in the dining hall and dormitories, may obtain accommodations in houses near College Hall for $5.00 per week and upwards. A list of lodgings, prepared after personal visitation by Faculty Committe No. 5, may be consulted in the Dean's office, College Hall, after September 15, 1899. The average price paid by students in such quarters is $5.50 per week. The figures given herewith are based upon the cost of living either in the dormitories and dining hall, or in a boarding house.

	Min.	Max.
Board and lodging—thirty-seven weeks.....	$185 00	$250 00
Tuition (according to the character and year of the course).....	160 00	200 00
Text-books	10 00	50 00
	$355 00	$500 00

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ADMISSION TO COLLEGE.

Candidates for admission to the Freshman Class of the College enter by examination; but diplomas of Public High Schools may be accepted as complete or partial certificates. Candidates who present such diplomas will be referred to Faculty Committee No. 1, who will examine each case and decide whether the diplomas shall be accepted in lieu of examinations, and what subjects they properly cover. This privilege is granted tentatively to the public high schools, for the reason that their curricula are adjusted primarily to the needs of students not making a special preparation for College.

Every candidate for admission is required to furnish a testimonial of honorable dismission from the school or college which he last attended, or from the tutor with whom he has studied. He must also refer to two persons, preferably his teachers or employers, from whom information may be obtained. When a candidate has been in regular attendance at a school or academy during the year preceding his application for admission a testimonial from a private tutor will not in itself be sufficient. *Testimonials and references must be sent to the Dean not later than the first day of the entrance examinations in June and September (June 15 and September 22, respectively).*

Candidates who do not desire to take all their examinations in June or September, may take part at one time and part at the other, making such division as they may elect; or they may take a part of their examinations one year in advance of their admission to College, as prescribed below, under *Preliminary Examinations.*

ENTRANCE EXAMINATIONS.

Entrance examinations are held in June and September. Circulars stating the days and the subjects of examinations for each day can be had, after April 1, on application to the Registrar of the College. In addition to the examination held at the University, examinations for entrance are held simultaneously in June in a number of cities in the United States. In 1898, examinations were held in Boston, Mass., Cincinnati, Ohio, Concord, N. H., Harrisburg, Pa., Lockport, N. Y., Louisville, Ky., Mercersburg, Pa., New York City, Pittsburg, Pa., Scranton, Pa., Southborough, Mass., St. Paul, Minn., Trinidad, Col., Worcester, Mass., York, Pa. Information regarding the places and dates of these examinations for 1899 may be obtained upon application to the Registrar.

Marks are given in entrance examinations on a scale of ten (10).

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A general average of six (6) *is required for admission to College.* Any candidate whose marks fall below five (5) in *one-third* of the examinations will be rejected. A mark below five (5) in any topic will necessitate a re-examination in that topic. The minimum in English for admission to any course is seven (7); and the minimum in Mathematics for admission to any of the Engineering courses is seven (7).

Certain prizes have been established for proficiency shown at entrance examinations by candidates for the Freshman Class. These will be found in detail under *Prizes,* above.

SUBJECTS OF EXAMINATION.

The subjects of examination are in part the same for all candidates, in part dependent upon the course that the candidate desires to pursue. Under the captions **I, II** and **III,** following, is given a list of all subjects in which entrance examinations are held. No candidate is required to pass in all of these subjects. The requirements for each course are given in detail on page 67.

I.

ENGLISH.

No candidate will be accepted in English whose work is notably defective in spelling, punctuation, idiom or division into paragraphs.

Preliminary: A.

A.—(1) Grammar (as in Abbott's *How to Parse,* or Murray's *Advanced Lessons in English Composition, Analysis and Grammar*). (2) Composition.—A short essay, correct in spelling, punctuation, grammar, division by paragraphs, and in expression, written on a subject to be announced at the time of the examination.

B.—Reading. (1) The candidate will be required to present evidence of a *general* knowledge of the following works and their authors: Dryden's *Palamon and Arcite;* Pope's *Iliad,* Books I, VI, XXII, and XXIV; *The Sir Roger de Coverley Papers* in *The Spectator;* Coleridge's *The Rime of the Ancient Mariner;* De Quincey's *Revolt of the Tartars;* Cooper's *The Last of the Mohicans;* Lowell's *The Vision of Sir Launfal,* and Hawthorne's *The House of the Seven Gables.* (2) A *special* knowledge of the subject-matter, form and structure of the following works: Shakespeare's *Macbeth;* Milton's *Paradise Lost,* Books I and II; Burke's *Speech on Conciliation with America,* and Carlyle's *Essay on Burns.*

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For 1900: A general knowledge of the following works and their authors: Tennyson's *The Princess;* Scott's *Ivanhoe;* De Quincey's *Revolt of the Tartars;* Pope's *Homer's Iliad,* Books I, VI, XXII, and XXIV; Cooper's *The Last of the Mohicans;* Dryden's *Palamon and Arcite; The Sir Roger De Coverley Papers,* in *The Spectator;* Goldsmith's *The Vicar of Wakefield.*

A special knowledge of the subject-matter, form and construction of the following works: Macaulay's *Essays on Milton and Addison;* Burke's *Speech on Conciliation with America;* Shakespeare's *Macbeth;* Milton's *Paradise Lost,* Books I and II.

For 1901: A general knowledge of the following works and their authors: George Eliot's *Silas Marner;* Shakespeare's *Merchant of Venice;* Pope's *Homer's Iliad,* Books I, VI, XXII, and XXIV; *The Sir Roger De Coverley Papers,* in *The Spectator.* Goldsmith's *The Vicar of Wakefield;* Coleridge's *The Rime of the Ancient Mariner;* Tennyson's *The Princess;* Scott's *Ivanhoe;* Cooper's *The Last of the Mohicans.*

A special knowledge of the subject-matter, form and structure of the following works: Shakespeare's *Macbeth;* Milton's *L'Allegro, Il Penseroso, Comus and Lycidas;* Burke's *Speech on Conciliation with America;* Macaulay's *Essays on Milton and Addison.*

History.

Preliminaries: Either of the two required topics.

A. Greek History to the death of Alexander, with due reference to Greek life, literature and art.

B. Roman History to the accession of Commodus, with due reference to literature and government.

C. English History, with due reference to social and political development.

D. American History, with the elements of Civil Government. This will include colonial history, with a view to the origin and development of our institutions; and the period of discovery and early settlement, so as to set forth the relations of peoples in America and the meaning of the struggle for mastery.

Geographical knowledge, to be tested by a reference to an outline map, will form part of these examinations.

Any two of these topics may be offered for admission, except for Course 1 in Arts and Science, for which A and B are prescribed.*

Written work in the form of a note book, when duly certified by the teacher, will be accepted as partial evidence of the candidate's proficiency.

* See Tabular View facing p. 72.

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Such work should include practice in some of the following:

(*a*) Notes and digests of reading outside of the text-books.

(*b*) Written recitations requiring the use of judgment and the application of elementary principles.

(*c*) Written parallels between historic characters or periods.

(*d*) Investigation of topics limited in scope, prepared outside the class room.

(*e*) Historical maps, made from printed data or comparison of existing maps, and showing movements of explorations, immigration or conquest, territorial changes or social phenomena.

NOTE.—*Written work, when offered, should be sent to the Professor of American History at least two weeks before the entrance examinations begin.*

MATHEMATICS.

Preliminaries: B and D. (Also E and F, for which see page 66.)

B. ALGEBRA. Factors; common divisors and multiples; fractions; equations of the first degree of one or more unknown quantities.

C. ALGEBRA. Involution, including the binomial theorem for positive entire exponents; the doctrine of exponents; radicals, and equations involving radicals; quadratic equations of one or two unknown quantities, and equations solved like quadratics; ratio and proportion; putting problems into equations; and arithmetical and geometrical progression.

D. PLANE GEOMETRY. Including the solution of simple original exercises and numerical problems.

II.

GREEK.

Preliminaries: A, B and E. (Candidates are advised, however, to reserve E for the finals.)

A. GRAMMAR. Xenophon's *Anabasis,* Books I and II, will be the basis of this examination, which will consist in part of questions on the common forms, idioms and constructions, and in part of simple sentences to be turned into Greek; translation into English may be included.

The prescribed reading will remain in force from 1899-1902, *inclusive.*

B. ATTIC PROSE AT SIGHT. Accurate knowledge of forms and syntax will be expected. The passages will be adapted to the proficiency of students who have read not less than one hundred and thirty Teubner pages of Attic prose.

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C. HOMER. *Iliad,* Book I and Book II, vv. 1-498. Translation, with questions on forms, construction and prosody.

The prescribed reading will remain in force until 1900, *inclusive.*

D. HOMER AT SIGHT. Ability to translate a passage of ordinary difficulty from *Iliad* or *Odyssey,* with the aid of a vocabulary of the less usual words.

E. COMPOSITIONS. Ability to translate into Attic prose a connected narrative, involving the more common words and construction of a prescribed text.

From 1899 to 1902, *inclusive,* the text will be Xenophon's *Anabasis,* Books I and II; or Xenophon's *Cyropaedia,* Book I, Chaps. I to V, inclusive. The candidate will elect between these two.

LATIN.

Preliminaries: A, B, C, D, E.

A. GRAMMAR. (1) Inflection and derivation of words. (2) Syntax, with the writing of simple Latin prose.

For the first three years this part of the examination will be based chiefly upon Cicero's second, third and fourth speeches against Catiline.

B. TRANSLATION AT SIGHT of passages adapted to the proficiency of those who have studied from ninety to one hundred and twenty Teubner pages of Cæsar and Nepos (from sixty to seventy-five pages of Cæsar, and from thirty to forty-five pages of Nepos).

C. CICERO: The four speeches against Catiline; that on the Manilian Law; and either Archias or the Fourteenth Philippic. (see F.)

D. VERGIL: *Æneid* I-VI, with Prosody (Dactylic Hexameter); (2) Ovid; *Metamorphoses* (from twelve hundred to three thousand lines).

E. SUBJECT MATTER, with points on Geography, History and Mythology contained in C and D.

F. TRANSLATION AT SIGHT of passages taken at large from Cicero's speeches (adapted to the proficiency of those who have read from ninety to one hundred and twenty pages), Vergil, and Ovid's *Metamorphoses;* or from prose and verse of no greater difficulty.

G. THE TRANSLATION INTO LATIN PROSE of a passage of connected idiomatic English, based upon Cæsar's *Gallic War,* Book II.

Note.—F and G will constitute more important parts of the examination than heretofore.

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FRENCH.

Preliminary: A.

A. GRAMMAR. The conjugation of the regular verbs and of the more frequently recurring irregular verbs; the forms and positions of the various pronouns and pronominal demonstrative and interrogative adjectives; the inflections of nouns and adjectives; the use of the articles and the partitive constructions. This will be tested by the translation into French sentences or of a short connected passage. Direct questions upon points of grammar may be asked.

The satisfactory completion of this subject will involve the reading of at least one hundred duodecimo pages out of the four hundred prescribed under B.

B. SIGHT TRANSLATION. Ability to render into good English a passage of nineteenth century prose. The passage set will be adapted to the proficiency of students who have read not less than four hundred duodecimo pages from at least three authors.

GERMAN.

Preliminary: A.

A. GRAMMAR. The declension of nouns, articles (according to the historical classification), adjectives, pronouns; the conjugation of both strong and weak verbs (including the modal auxiliaries); the elementary rules of syntax and word order. The test will consist in part of direct grammatical questions, and in part of translation of simple English into German.

The satisfactory completion of this subject will involve the reading of at least one hundred duodecimo pages out of the two hundred prescribed under B.

B. SIGHT TRANSLATION. The translation at sight of easy German prose into idiomatic English. The passages set will be selected from not less than *three representative nineteenth Century prose writers,* and will presuppose the reading of not less than two hundred duodecimo pages of easy German.

III.

MATHEMATICS.

E.—Solid Geometry (as contained in Chauvenet's or Wentworth's *Geometry*).

F.—Plane Trigonometry (as in the more elementary portions of Chaps. I-VI, in Crawley's *Elements of Trigonometry*), and the use of Logarithms.

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PHYSICS.

As in Carhart and Chute's, or Gage's, *Elements of Physics.*

REQUIREMENTS FOR ADMISSION TO EACH COURSE.

FOR THE COURSES IN ARTS AND SCIENCE:

All of the subjects contained in **I**, and two of the languages contained in **II**: if Greek is one of the languages offered, Latin must be the other.

FOR THE COURSE IN FINANCE AND ECONOMY (WHARTON SCHOOL):

All of the subjects contained in **I**, and two of the languages contained in **II**: one of the languages offered must be German.

Or,

All of the subjects contained in **I** and **III**, and German as contained in **II**.

FOR THE COURSE IN BIOLOGY:

All of the subjects contained in **I**, and Latin and German as contained in **II**.

FOR THE COURSE IN MUSIC (See index).

FOR THE COURSE IN ARCHITECTURE:

All of the subjects contained in **I**; French *or* German as contained in **II**, and Mathematics E, as contained in **III**.

FOR THE COURSES IN SCIENCE AND TECHNOLOGY:

All of the subjects contained in **I**, two of the languages, *excepting Greek*, contained in **III** (but if Latin is one of the languages offered, only the parts indicated by A, B, and D′ are required); and Mathematics E, as contained in **III**.

FOR THE FOUR-YEAR COURSES IN MECHANICAL, ELECTRICAL, CIVIL, AND CHEMICAL ENGINEERING:

All of the subjects contained in **I**; French *or* German as contained in **II**; and all of the subjects contained in **III**.

FOR THE FOUR-YEAR COURSE IN CHEMISTRY:

All of the subjects contained in French *or* German as contained in **II**; and Mathematics F and Physics, as contained in **III**.

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PRELIMINARY EXAMINATIONS.

Candidates may present themselves one year in advance of their admission to College for examination in a portion of the subjects required for admission to the course they propose to enter. ***Every candidate for such preliminary examinations must present to the Dean of the College a certificate of preparation from the head master of his school, or from his tutor, naming the subjects in which he is prepared, before he can be admitted to the examinations.*** Blank forms of certificate for this purpose may be had upon application to the Dean.

Candidates may take preliminary examinations in June or September. In cases where such examinations are to be taken at one of the authorized places outside of Philadelphia, certificates of preparation must be forwarded to the Dean of the College in time to reach him on or before June 5, 1899.

The following subjects will be accepted as preliminaries in June and September, 1899:

English	A.
Mathematics	B, D, E, F.
Latin	A, B, C, D, E.
Greek	A, B, E.
German	A,
French	A.
History	A or B or C or D.

No certificate giving credit for subjects passed at a preliminary examination will be issued unless the candidate passes in at least *four* subjects.

A candidate who fails at the entrance examination may, on application, be allowed credit until the next year in those subjects in which he attained a grade of seven (7) on a scale of ten (10), provided he attains this grade in four subjects that are regularly allowed as preliminaries.

A candidate who presents himself for preliminary examinations in June, may not present himself at the entrance examinations in the September following. This rule, however, is not to be construed as forbidding a candidate for admission in any year from dividing his examinations between June and September of that year, if he so elects.

ADMISSION TO ADVANCED STANDING.

Students are admitted to advanced standing, as follows:

(1) Those who come from other colleges may be admitted to

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courses without examination. Such students must present full statements as to age and previous studies at college; these statements must be accompanied by official letters from the authorities of the college from which they come, and must give in detail, by subjects and portions of subjects, the course pursued and the grades attained in each subject or portion of subject taken. These papers should be sent to the Dean for submission to Faculty Committee No. 3, which has full authority to pass upon them. If the previous studies of the applicant satisfactorily cover the work already done by the class he desires to enter, he will be admitted as a special student in that class, to become a full student if he pass the next following examinations. In particular subjects, proper equivalents will be accepted by the committee, according to its own best judgment. If the course certified to, as above required, does not fully cover the work already done by the class the applicant proposes to enter, such course must be supplemented by examinations on the subjects or portions of subjects that are lacking.

(2) Those who do not come from other colleges, or who do not present official statements from college authorities, will in all cases be examined upon the subjects required for admission, and upon the previous work of the class that the applicant desires to enter.

(3) No student may be admitted as a candidate for a degree after the beginning of the Senior year.

(4) A graduate of another college of sufficient standing may be admitted without examination to the Senior Class as a regular student, provided (*a*) that his previous course may be accepted by Faculty Committee No. 3 as a fair equivalent of the work of the first three years of the course which he proposes to enter; and (*b*) that the professors in charge of the subjects which he proposes to take find that he has had the requisite preparation.

ADMISSION TO SPECIAL AND PARTIAL COURSES.

The admission of special and partial students is in charge of Faculty Committee No. 2.

Every applicant for admission as a *special student* is required to fill out a blank containing such questions as may seem necessary to determine his general educational fitness, the reasonableness of his application, and the propriety of entertaining it. The committee may make supplementary inquiries of former teachers of the applicant, and of others to whom it may be referred. If the committee decides to entertain the application, the applicant will be sent to the

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heads of the departments in which he proposes to take his course, or to the examiners appointed for the various authorized special courses. Where the requirements are not fulfilled entirely, the applicant is referred back to the committee, which calls in the professors with whom the applicant proposes to work, and consults with them as to his fitness to take up their subjects: the reports of these professors on this point are final. The committee then, with this additional evidence, accepts or rejects the application.

Every applicant for admission as a *partial student* is first passed upon also by this committee, which, if it decides to entertain the application, sends the applicant to the professors, with whom he desires to work. These report to the committee as to his fitness to take up work in their subjects. The committee on receiving these reports finally approves or rejects the application.

AUTHORIZED SPECIAL COURSES.

1.—A Special Course in Arts and Science.

This course begins with the Junior year. It must contain the essential studies of some one of the fifteen groups, and four other exercises per week, two of which in the Junior year must be taken from the subjects prescribed for all Juniors.

A candidate must be at least eighteen years of age, and must pass all the entrance examinations required for one of the regular courses in Arts and Science. If both subjects in the group chosen be contained in the two lower years, he must further show by examination that he has done work in these subjects equivalent to that of those two years; but if both subjects in the group chosen are not contained in both the lower years, he must show by examination that he has done work in English and History equivalent to the work in these subjects in the two lower years.

2.—Two Special Courses in Finance and Economy.

The first course contains all the studies of the Sophomore, Junior and Senior years; but a student who is not prepared to do the German of the Sophomore year, shall have assigned him, in place of German, special work, to be selected from the studies of the Freshman year. The second course contains all the work of the Junior and Senior years.

A candidate for either course must satisfy one of the following requirements:

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A. He must be at least twenty-one years old, and must satisfy the professors in charge that he is qualified to take the work.

B. He must be at least eighteen years old, and must show either: (*a*) that he is a graduate of a high school having a three years' course, of a grade satisfactory to the Committee on Finance and Economy, or of a school having an equivalent course; or (*b*) that he is a graduate of a Normal School.

For admission to the two-year course, a candidate must show, in addition, that he has done work of the character of that done in the Sophomore year of the regular course, and of such amount as shall be accepted by the Committee on Finance and Economy as equivalent to that year's work.

3.—Special Courses in Chemistry and in Civil and Mechanical Engineering.

These shall consist in each case of the technical work of the three upper years of the courses in Science and Technology, beginning with the Junior year.

Candidates must show the professors in charge that in Mathematics, Physics and Drawing, they have had a preparation that fits them to take up work on a footing with the regular students.

4.—A Special Course in Architecture.

This course extends over two years.

The candidate must be at least eighteen years of age, and must have spent two years at work in the office of a practising architect; or must have had such other technical training as may, in the judgment of the Professor of Architecture, be considered an equivalent.

5.—A Special Course in Interior Decoration.

This course extends over three years, and is open to men and women alike.

The candidate must be at least eighteen years of age, and must possess a knowledge of the rudiments of drawing.

6.—A Special Course in Biology.

This course extends over two years, and contains all the studies which at present constitute the course in Biology preparatory to Medicine. It is open to men and women alike.

The candidate must be at least eighteen years of age, and must pass the same entrance examinations as are required for admission to the regular course, omitting either Latin C or D.

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COURSES OF STUDY.

*THE COURSES IN ARTS AND SCIENCE.

The Courses in Arts and Science form a group of purely liberal courses; in which, side by side with the Greek, Latin and Mathematics of the once universal college course, will be found the newer elements (from an educational point of view), of English Literature, History and the Pure Sciences. The courses have been planned with the view of retaining, as required studies, those subjects which seem essential for all who are candidates for a liberal degree; and, on the other hand, of allowing the utmost freedom of selection consistent with the attainment of a sound education.

Immediately upon a student's entrance to College, any one of four courses is open to him. These courses continue through the Freshman and Sophomore years, and differ from each other in the languages assigned for study. The languages offered for admission by a student determine which of these four courses is pursued during the first two years. In the Sophomore year, History is elective with Mathematics.

At the beginning of the Junior year an election is made of a group of two studies to be pursued during the remainder of the course. The selection of this group is conditional to a certain extent upon the studies previously pursued. Fifteen such groups are offered. These groups have been formed in each case of subjects that naturally go together and are mutually helpful, the purpose being to give unity to the student's work. The group occupies eight hours a week in the Junior and ten in the Senior year. Two hours a week in the Junior and five in the Senior year must be devoted to free electives.

LIMITATIONS TO THE SELECTION OF GROUPS.

The election between History and Mathematics made in the Sophomore year will naturally influence the choice of historical and mathematical groups in the two upper years. No language group can be chosen in the Junior year unless the languages contained in it have been included in the work of the two lower years.

STUDIES REQUIRED OF ALL.

In the Freshman year: English, Mathematics and History; a total of ten hours.

* An outline of these courses is given in the Tabular View facing this page.

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In the Sophomore year: English, Mathematics or History, Chemistry and Physics; a total of ten hours.

In the Junior year: English Literature, Logic and Ethics; a total of five hours.

FRESHMAN CLASS.

Subjects.	No. of hours per week.		For a brief description, see	
	1st Term.	2d Term.	page	number.
Required.				
Composition	2	2	124	1
English Language and Analysis	1	1	127	1
French History / American History (one of these only)	3	3	127	1
	3	3	132	7, 8
Solid Geometry / Plane Trigonometry	2	2	144	3 / 5
Algebra	2	2	143	1
Physical Hygiene	1	1	—	—
Elective.				
Greek	3	3	122	1
Latin	3	3	123	2
French	3	3	128	5
German	3	3	129	1

Note.—Each student continues in Freshman and Sophomore years the study of the two languages offered for admission.

SOPHOMORE CLASS.

Required.				
Composition	1	1	124	2
Modern Essayists and Novelists	2	2	125–6	1, 2
History of Europe since 1789 (one of these only)	3	3	134	5, 6
Analytic Geometry and Spher. Trig. (one of these only)	3	3	143	10
Elementary Physics	2	2	146	1
General Inorganic Chemistry	4	4	144	1
Elective.				
Greek	3	3	122	2
Latin	3	3	123–4	3, 4
French	3	3	128	4
German	3	3	129	2

See note above.

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JUNIOR CLASS.

SUBJECTS.	No. of hours per week. 1st Term	2d Term	For a brief description, see page	number
Required of All.				
Composition	1	1	125	3
English Literature	2	2	126	3, 7
Logic	2	—	130	1
Ethics	—	2	130	2
Required for Students who are candidates for honors in English—				
Seminary in English Literature	2 (alternate weeks)	2 (alternate weeks)	126	4

Required Studies in each Group.

Greek. Latin.	Euripides, Thucydides, etc.	2	2	122	5
	Aristophanes, Aristotle	1	1	122	4
	Greek Life (given in alternate years)	1	1	122	8
	Greek Literature (given in alternate years)	1	1	122	8a
	Juvenal, Cicero, Horace's Odes	3	3	123	5
	Plautus, Terence, Petronius, Seneca	1	1	123	9
Latin. French.	Juvenal, Cicero, Horace's Odes	3	3	123	5
	Plautus, Terence, Petronius, Seneca	1	1	123	9
	Classical French, History of French Literature	3	3	128	2
Latin. German.	Juvenal, Cicero, Horace's Odes	3	3	123	5
	Plautus, Terence, Petronius, Seneca	1	1	123	9
	German Classics, Prose Composition, History of German Literature	4	4	128	5
German. French.	German Classics, Prose Composition, History of German Literature	4	4	128	5
	Classical French, History of French Literature	3	3	128	2
English. German.	Readings in Chaucer	—	2	126	16
	English Versification	2	—	125	5
	Anglo-Saxon, Phonetics	2	2	127	2
	German Classics, Prose Composition, History of German Literature	4	4	128	5

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JUNIOR CLASS—(Continued).

	Subjects.	No. of hours per week.		For a brief description, see	
		1st Term	2d Term	page	number
English. French.	Readings in Chaucer	—	2	126	16
	English Versification	2	—	125	5
	Anglo-Saxon, Phonetics	2	2	127	2
	Classical French, History of French Literature	3	3	128	2
History. English.	History of United States in Nineteenth Century	2	2	131	3
	Mediæval History	2	2	133	10
	Readings in Chaucer	—	2	126	16
	English Versification	2	—	125	5
	Anglo-Saxon, Phonetics	2	2	127	2
Philosophy. History.	Development of Scientific Thought	2	2	130	6
	Physiological Psychology	2	—	130	1
	Sensation and Perception	—	2	130	2
	History of United States in Nineteenth Century	2	2	131	3
	Mediæval History	2	2	133	10
Economics. History.	Economics	2	2	138	17
	American Political Institutions	2	—	136	6
	European Constitutions	—	2	136	6*a*
	History of United States in Nineteenth Century	2	2	131	3
	Mediæval History	2	2	133	10
Physics. Mathematics.	Mass Physics, Energy	2	—	147	3
	Sound and Heat	—	2	147	4
	Practical Physics	3	3	147	2
	Calculus	3	3	142	15*a*
	Theory of Equations	2	2	142	22
Math. Astronomy	Calculus	3	3	142	15*a*
	Theory of Equations	2	2	142	22
	Astronomy	3	—	144	1
	Practical Astronomy	—	3	144	2
Chemistry. Physics.	Analytical Chemistry (Qualitative)	8	8	145	2
	Mass Physics, Energy	2	—	147	3
	Sound and Heat	—	2	147	4
	Practical Physics	3	3	147	2

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JUNIOR CLASS – (Continued).

	Subjects.	No. of hours per week. 1st Term	2d Term	For a brief description, see page	number.
Biology. Chem.	Botany . . . . . { one only }	6	6	149	14, 15
	Zoölogy . . . . . { required }	9	9	148	3, 8
	Analytical Chemistry (Qualitative)	8	8	145	2
*Botany. Zoöl.	Structure and Functions of Plants	6	6	149	14, 16
	Invertebrate Zoölogy	3	6	148	3
	Mammalian Anatomy	6	3	148	8
Geol. (Min.) Chem.	Geology	2	—	151	1
	Mineralogy	4	4	150	1, 3
	Analytical Chemistry (Qualitative)	6	6	145	2
	Geological Field Work	—	3	151	4
	Assaying	2	2	146	12

FREE ELECTIVES.

Each student is required to take two hours per week of the free electives.

Any of the subjects enumerated above in any group may be taken as a free elective by a student in another group, with the permission of the professor in charge of the subject. Detailed information regarding these courses is given on pp. 121-164, where information is also given concerning courses offered as free electives only. In making a choice, due regard must be paid to the restrictions imposed by the roster.

SENIOR CLASS.

No courses of study are required of all the members of the Senior Class. Each student continues with the courses of the group which he elected in Junior year, taking each subject of the group five hours per week. In addition, he is required to take five hours per week of the free electives. See Free Electives above.

*Students wishing to be admitted subsequently to the second year of the Medical course must choose Chemistry 2 as a free elective.

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SENIOR CLASS—(Continued).

	Subjects.	No. of hours per week. 1st Term	2d Term	For a brief description, see page	number.
	Required Studies in each Group.				
Greek. Latin.	Sophocles, Æschylus, Demosthenes, etc.	2	2	122	6
	Plutarch, Theocritus	2	2	122	7
	Greek Life } given in alternate years.	1	1	122	8
	Greek Literature } given in alternate years.	1	1	122	8*a*
	Cicero, Juvenal, Horace's *Ars Poetica*	3	3	123	6
	Tacitus, Lucretius	2	2	123	11
Latin. French.	Cicero, Juvenal, Horace's *Ars Poetica*	3	3	123	6
	Tacitus, Lucretius	2	2	123	11
	Old French, History of French Literature	4	4	127	1
Latin. German.	Cicero, Juvenal, Horace's *Ars Poetica*	3	3	123	6
	Tacitus, Lucretius	2	2	123	11
	Classical German Prose and Drama, History of German Literature, German Composition	5	5	129	6
German. French.	Classical German Prose and Drama, History of German Literature, German Composition	5	5	129	6
	Old French, History of French Literature	4	4	127	1
English. German.	The English Drama	2	—	126	14
	Modern and Contemporary Poets	—	3	126-7	8, 17
	Elizabethan Grammar (See note below.)	1	—	127	6
	Classical German Prose and Drama, History of German Literature, German Composition	5	5	129	6
English. French.	The English Drama	2	—	126	14
	Modern and Contemporary Poets	—	3	126-7	8, 17
	Elizabethan Grammar (See note below.)	1	—	127	6
	Old French, History of French Literature	4	4	127	1

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SENIOR CLASS—(Continued).

	Subjects.	No. of hours per week. 1st Term	2d Term	For a brief description, see page	number
History. English.	English Social History	2	2	133	3
	American History	2	2	132	9, 10
	History of our own Time (United States)	1	1	121	4
	The English Drama	2	—	126	14
	Modern and Contemporary Poets	—	3	126-7	8, 17
	Elizabethan Grammar	1	—	127	6

NOTE.—Students taking any of the last three groups, who are candidates for honors in English, are required to attend

	Seminary in English Literature	1	1	51	9
Philosophy. History.	Ideation	2	2	130	5
	History of Philosophy	2	—	130	3
	Development of Idealism	—	2	130	4
	Complex Mental Processes	2	—	131	3
	Experimental Psychology	—	2	131	4
	English Social History	2	2	133	3
	American History	2	2	132	9, 10
	History of our own Time (United States)	1	1	131	4
Economics. History.	Principles of Government	3	—	135	16
	Finance and Government	2	2	135-6	19, 17
	Sociology	—	3	140	22
	English Social History	2	2	133	3
	American History	2	2	132	9, 10
	History of our own Time (United States)	1	1	131	4
Physics. Mathematics.	Radiation and Magnetism	3	—	147	5
	Electricity	—	3	147	6
	Laboratory Practice	3	3	147	10
	Advanced Analytic Geometry	2	2	142	13
	Differential Equations	2	2	142	23
Mathematics. Astronomy.	Advanced Analytic Geometry	2	2	142	13
	Differential Equations	2	2	142	23
	Practical Astronomy	3	3	144	3
	Theoretical Astronomy	3	3	144	4

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SENIOR CLASS—(Continued).

	Subjects.	No. of hours per week. 1st Term	2d Term	For a brief description, see page	number
Chemistry. Physics.	Analytical Chemistry (Quantitative)	7	—	145	3
	Organic Chemistry	1	9	145	5
	Radiation and Magnetism	3	—	147	5
	Electricity	—	3	147	6
	Laboratory Practice	3	3	147	10
Biology. Chemistry.	Botany { one only }	6	6	149	16, 17
	Zoölogy { required }	6	6	148-9	5, or 6 & 7
	Each student continues the subject begun in Junior year.				
	Analytical Chemistry (Quantitative)	7	—	145	3
	Organic Chemistry	1	9	145	5
Botany. Zoölogy.	Morphology and Classification of Plants	6	6	149	15, 17
	Animal Histology and Embryology	6	6	148	6, 7
	Vertebrate Morphology, or Human Anatomy	3	6	148-9	5 or 4
Geology. (Min.) Chemistry.	Geology	2	2	151	3
	Mineralogy	4	2	150	2 & 4
	Analytical Chemistry (Quantitative)	8	8	145	3
	Geological Field Work	—	3	151	4
	Lithology	2	2	151	2

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THE COURSE IN FINANCE AND ECONOMY.

(THE WHARTON SCHOOL.)

OFFICERS.

CHARLES C. HARRISON, LL. D., Provost.
JOSIAH H. PENNIMAN, PH. D., Dean of the College.
*REV. GEORGE S. FULLERTON, PH. D., Philosophy.
——— ——— ———, Finance and Administration.
SIMON N. PATTEN, PH. D., Political Economy.
ROLAND P. FALKNER, PH. D., Statistics.
JOSEPH FRENCH JOHNSON, A. B., Journalism.
JOHN BACH MCMASTER, A. M., LITT. D., American History.
EDWARD P. CHEYNEY, A. M., History.
DANA C. MUNRO, A. M., Roman and Mediæval History.
MERRICK WHITCOMB, PH. D., European History.
JOHN QUINCY ADAMS, PH. D., Political Science.
EMORY R. JOHNSON, PH. D., Transportation and Commerce.
SAMUEL MCC. LINDSAY, PH. D., Sociology.
LEO S. ROWE, PH. D., Political Science.
HENRY R. SEAGER, PH. D., Political Economy.
JAMES T. YOUNG, PH. D., Administration.

The Wharton School of Finance and Economy was founded by Joseph Wharton, Esq., of Philadelphia, in 1881, to provide instruction and special training in the knowledge and arts of modern Finance and Economy. The founder expressed the desire that it should offer facilities for obtaining:

(1) "An adequate education in the principles underlying successful civil government."

(2) "A training suitable for those who intend to engage in business, or to undertake the management of property."

The course has been constructed in accordance with these ideals. Its educational material is drawn from the field of practical and public affairs. The growth in recent years of the political and social sciences and of history, has furnished a store of knowledge which forms an appropriate basis for collegiate instruction. This has found expression, not only in the increased attention paid to these topics in our educational institutions, but also in the foundation in a number of them of schools of political and social science. Of these the Wharton School of Finance and Economy is one of the oldest.

* Absent on leave.

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The practical purpose of the course lies in its outlook toward certain definite careers of practical life. The course has been arranged to give the future man of affairs an elementary knowledge, at least, of the complex problems of modern life. In business enterprises, in the law, in journalism, or in teaching, such training must afford a valuable basis for future work.

It was early perceived that the groundwork of such a course should be training in Politics and Economics. Around this basis has been grouped work in History, Logic, Languages and Mathematics, as well as special work in Transportation, Commerce, Banking, Journalism and kindred topics. A complete list of the subjects covered, in which side by side with general studies will be found the discussion of many of the living topics of the day, is given in the detailed statement of the courses.

A course for young men looking forward to Journalism as a career was established in the fall of 1893. It is designed not only to give the student a thorough training in History, Politics and Economics, but also to make him ready and accurate in the application of his knowledge to the discussion of current issues and the solution of current problems.

Special courses in the Wharton School embrace:

(1) The work of the Junior and Senior years.

(2) The work of the Sophomore, Junior and Senior years, with the exception of the German of the Sophomore year, for which a subject given in the Freshman year may be substituted. For the requirements for admission to these special courses, see pp. 69-71.

ADMISSION, ETC.

The requirements for admission to the course in Finance and Economy are: English A and B; History A, B, C, D (any two of these four): Mathematics B, C and D; German A and B; and either one of the following: (1) French A and B; (2) Latin A, B, C, D, E, F and G; (3) Greek A, B, C, D and E; *or* (4) Mathematics E and F, and Physics. For details see pp. 61-71.

The tuition fee for this course is one hundred and sixty (160.00) dollars per annum.

METHODS OF WORK.

The plan of instruction embraces recitations, lectures and seminaries. The endeavor is made to train the students to think independently on the topics that form the subjects of instruction. An earnest effort is made to exclude all dogmatism in political or

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economic teaching, to present fairly all aspects of disputed questions, and to put the students in a position to form their own opinions on intelligent grounds.

To heighten the interest of students in present political and economic problems, public lectures are given at intervals before the entire school. Among the lecturers for the year 1898-99 are Hon. Carroll D. Wright, Hon. Martin A. Knapp and Mr. George K. Holmes of Washington, Dr. Albert Shaw of New York and Professor L. M. Keasbey, of Bryn Mawr. Lectures were given during the first term by Mr. John Martin of London, on *The London County Council;* Mr. Joseph Wharton, on *The Balance of Trade;* Professor Franklin H. Giddings of New York, on *The Results of the War.*

Original research by the students, under the direction of the professors, is a part of the work of the school. The results of some of this investigation have been published as follows:

The Recent Development of American Industries, by the Class of 1891, 111 pp.

The City Government of Philadelphia, by the Class of 1893, 278 pp.

THESES.

An essential part of the work of the Senior year is the preparation of a thesis. Students may choose a subject proposed by an instructor, and are then expected to do their work under his direction. In the year 1898-99 the work is in charge of a committee consisting of Professors Falkner, Rowe and Seager.

LIBRARY FACILITIES.

The University Library is especially rich in Economics and Statistics, containing the Colwell and Carey collections, as well as more recent acquisitions. Besides the University Library, the public libraries of the city, and many of the private ones also, aggregating several hundred thousand volumes, are open to students in the pursuit of their work.

WHARTON SCHOOL CONGRESS.

To familiarize the student with public affairs and legislative methods, a Congress, modeled after that of the United States, has been organized in the school. Bills bearing on the topics which occupy the attention of the national legislature are introduced and discussed, and a knowledge of parliamentary procedure is thus inculcated by actual practice.

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FRESHMAN CLASS.

Subjects.	No. of hours per week.		For a brief description, see	
	1st Term	2d Term	page	number
Composition	2	2	124	1
Algebra	2	2	143	1
Solid Geometry	2	—	144	3
Trigonometry	—	2	144	5
General Chemistry*	4	4	144	1
German	3	3	129	1
Accounting	3	3	137	1
Physical and Economic Geography	2	2	139	14
Practical Economic Problems	2	2	138	16
Economic Literature	2	2	138	18
Legislative and Executive Documents	1	1	136	8a
Newspaper Practice†	1	1	141	3

*For students who present Mathematics E and F and Physics for admission to College. Such students omit Solid Geometry and Trigonometry.
†For students in Journalism, who omit Accounting in second term.

SOPHOMORE CLASS.

Subjects.	No. of hours per week.		For a brief description, see	
	1st Term	2d Term	page	number
Modern Novelists	2	—	125	2
Modern Essayists	—	2	126	15
German	3	3	129	2
Business Law*	4	—	137	2
Theory and History of Money*	4	—	138	2
Business Practice	—	2	137	3
American History	—	4	131	1
Roman History	4	—	133	9
Theory and Geography of Commerce	—	4	139	13
American Constitutional Law	2	—	136	1
European Constitutional Law	—	2	136	4
Legislative Procedure and Organization	2	—	136	8
Political Economy	2	2	137	1
Newspaper Practice†	1	1	141	3
Current Topics†	1	1	141	4

*The course in Business Law covers the first half of the first term; the course in the Theory and History of Money the second half of the same term.
†For students in Journalism, who omit Business Practice and also one half of the term work in Theory and Geography of Commerce.

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JUNIOR CLASS.

Subjects.	No. of hours per week.		For a brief description, see	
	1st Term	2d Term	page	number
Comparative Politics	2	2	134	3
Modern Legislative Problems	—	4	135	15
Statistics	—	4	138	9
Banking	4	—	137	5
Economic History	2	2	138	8
Sociology	2	2	139	20
Sociological Field Work	2	2	140	23
American History	4	—	131	1*a*
English Constitutional History	2	2	133	2
Logic	2	—	130	1
Ethics	—	2	130	2
Art and History of Newspaper Making*	1	1	141	1
Newspaper Practice*	1	1	141	3*a*
Current Topics*	1	1	141	4*a*

* For students in Journalism, who omit either Modern Legislative Problems or Banking.

SENIOR CLASS.

Subjects.	No. of hours per week.		For a brief description, see	
	1st Term	2d Term	page	number
Required.				
Political Economy	2	2	137	5, 6
Public Administration	2	2	136	5
Public Finance	2	2	138	7
Advanced Sociology	2	2	140	21
History of Renaissance and Reformation	2	2	134	7
*Elective.**				
Art and History of Newspaper Making	1	1	141	1
Newspaper Practice	1	1	141	3*a*
Current Topics	1	1	141	4*a*
Social Reformers	2	2	140	24
Local and Municipal Institutions	4	—	135	13
Transportation	4	—	139	15
Monetary History	2	—	138	3
Commerce	—	4	139	11
History of Law and Legal Concepts	—	4	134	12
International Law	—	2	135	18

* A total of six hours to be selected in each term.

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THE COURSES IN BIOLOGY.

OFFICERS.

CHARLES C. HARRISON, LL. D., Provost.
JOSIAH H. PENNIMAN, PH. D., Dean of the College.
JOHN M. MACFARLANE, D. Sc., Botany. Professor in Charge.
*JOSEPH T. ROTHROCK, B. S., M. D., Botany.
——— ——— ———, Zoölogy and Comparative Anatomy.
EDWIN G. CONKLIN, PH. D., Histology and Embryology.
LIGHTNER WITMER, PH. D., Experimental Psychology.
CHARLES M. BURK, M. D., Zoölogy.
J. PERCY MOORE, PH. D., Zoölogy.
JOHN W. HARSHBERGER, PH. D., Botany.
PHILIP P. CALVERT, PH. D., Zoölogy.
T. HARVEY DOUGHERTY, Zoölogy.
HOBART C. PORTER, PH. D., Botany.
A. FERREE WITMER, M. D., Pathology.
CHARLES F. NASSAU, M. D., Bacteriology.

The courses offered in Biology have been prepared to meet the requirements of students who desire instruction in the biological sciences either (1) for general culture; (2) as a preparation for teaching, and for original investigation in Biology; or (3) as a foundation for the professional course in Medicine. To meet these three distinct aims, the University offers (1) the elective †Biology-Chemistry group and the †Botany-Zoölogy group in the courses in Arts and Science; (2) the four-year course in Biology; and (3) the two-year course in Biology.

The four-year course is designed for those who desire to become teachers, or to take up special work as investigators in the field of biological science. The course includes Physics, Chemistry, Mathematics, English, English Literature and German, as well as Natural Science studies. Graduates in this course receive the degree of Bachelor of Science in Biology.

The two-year course is a special course, and is designed primarily for those who desire some systematic training in the Natural Sciences before taking up the study of Medicine. It embraces the study of Chemistry and Physics; General Vertebrate and Invertebrate Zoölogy; Mammalian and Human Anatomy; Comparative Histology, Embryology, Physiology and Pathology; and the Morphology, Physiology, and Systematic Affinities of Plants.

* Absent on leave.
† See Tabular View facing page 72—Groups 13 and 14.

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A certificate of proficiency is granted to students who successfully complete this course. This certificate entitles women students to certain concessions granted by the Women's Medical College of Philadelphia. It is also received by the Medical Faculty of this University in lieu of the regular examinations for entrance to the Department of Medicine, and permits the holder, after examination, to omit certain branches prescribed for the first year.

Students wishing to take advantage of the rule of the Department of Medicine (see index), admitting them to the second year of the Medical course, must have covered the following subjects:—

Physics	5 hours per week	Physiology .	6 hours per week
Gen. Chem..	8 " " "	Mammalian Anatomy..	9 " " "
Analyt. " .	8 " " "	Human Anatomy..	9 " " "
Gen. Biology,	6 " " "	Histology & Embryol.	12 " " "
Botany 12	" " "		
Zoölogy (Vert. or Invert.).	9 " " "		

Both the four-year and two-year courses in Biology are open to men and women alike.

The tuition fees in both are one hundred and sixty (160.00) dollars per annum.

EQUIPMENT.

The Biological Hall contains a teaching museum, four large class rooms and laboratories for undergraduate work; four laboratories for graduate courses; private rooms and laboratories for the instructors; herbarium, photographic, and chemical rooms; a reading room and working biological library; also recreation rooms for the use of the students. The different departments are completely equipped with charts and specimens, simple and compound microscopes, microtomes, water baths, and other apparatus for sectioning; and a large set of instruments and requisite accessories for studies in plant physiology, and for photographic work.

The ground surrounding the Biological Hall covers about five acres, and has been laid out as a botanic garden. It contains upwards of three thousand species of native and exotic plants. Eight greenhouses, in direct communication with the laboratories, are filled with plants that are utilized for demonstration in the class rooms. The herbarium is large, and includes collections made by I. Burk, Leidy, Rothrock, Gray, Aubrey-Smith and other well-known botanists. A varied series of plant preparations and dissec-

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tions preserved in alcohol has been set out, and is constantly being increased. A complete collection of the vegetable products used in the United States pharmacopœia is classified and displayed in the museum. The zoölogical collections consist of material for class study, and of a rich set of specimens disposed as a synoptic museum in one of the rooms. A recent addition consists of the valuable osteological collections of the late Professor Cope, bequeathed by him to the University. The collections in the Wistar Institute of Anatomy and Biology and in the Academy of Natural Sciences afford unrivaled facilities for study.

The general biological library contains several thousand volumes, including works of reference and all the important periodicals. It is deposited in the Biological Hall, and comprises the special zoölogical libraries of the late Professors Leidy, Ryder and Cope.

Each student after matriculating is provided with a simple and compound microscope, micrometer, glassware, reagents, stains, etc., for use during the session. The work is conducted largely in the laboratories, where the objects of study—plant or animal—are examined, sketched and dissected by the student.

FOUR-YEAR COURSE IN BIOLOGY.

The requirements for admission to this course are: English A and B; History A, B, C, D (any two of these four); Mathematics B, C and D; Latin A, B, C, D, E, F and G; and German A and B. For details see pp. 61-71.

FRESHMAN CLASS.

Subjects.	No. of hours per week.		For a brief description, see	
	1st Term	2d Term	page	number
Solid Geometry	2	—	144	3
Trigonometry	—	2	144	5
German	3	3	129	1
Composition	2	2	124	1
English Language and Analysis	1	1	127	1
Freehand Drawing	3	3	153	13
General Chemistry	4	4	144	1
Botany	6	6	149	14, 16
Invertebrate Zoölogy	3	6	148	3

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SOPHOMORE CLASS.

Subjects.	No. of hours per week.		For a brief description, see	
	1st Term	2d Term	page	number
Composition	1	1	124	2
English Literature	2	2	125-6	1, 2
German	3	3	129	3
Elementary Physics	2	2	146	1
Analytical Chemistry (Qualitative)	6	6	145	2
Botany	6	6	149	15, 17
Elementary Physiology	1	1	148	1
Mammalian Anatomy	6	3	148	8

JUNIOR CLASS.

Geology	2	2	151	3
Analytical and Organic Chemistry (Quantitative)	6	6	145	3, 5
Botany	6	6	149	18, 26
Vertebrate Morphology	3	6	149	5
Animal Histology	6	—	148	6
Animal Embryology	—	6	148	7
Animal Physiology	3	3	148	20
The Nervous System	2	—	130	1
Psycho-Physics	—	2	130	2

SENIOR CLASS.

Advanced Botany	9	9	149	29
Advanced Zoölogy	9	9	148	30
Animal Pathology	1	1	149	2
Recent and Fossil Vertebrates	3	3	148	25
Physiological Psychology	2	—	131	3
Experimental Psychology	—	2	131	4

TWO-YEAR COURSE IN BIOLOGY.

The requirements for admission to this course are the same as those for admission to the four-year course, except in Latin, in which A, B, and C or D are required: see page 65. See also requirements for Special students, pp. 69-71.

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***FIRST YEAR.**

Subjects.	No. of hours per week.		For a brief description, see	
	1st Term	2d Term	page	number
Required				
Botany	6	6	149	14, 16
Invertebrate Zoölogy	3	6	148	3
Mammalian Anatomy	6	3	148	8
Elementary Physiology	1	1	148	1
General Chemistry	4	4	144	1
German	3	3	129	1
Alternates.				
Psychology	2	2	130	1 & 2
Trigonometry	—	2	144	5

*Students intending to take advantage of the rules of the Department of Medicine admitting them without entrance examination, and exempting them from certain first-year studies, must elect Trigonometry in the first year, and Physics in the second year.

***SECOND YEAR.**

Required.				
Botany	6	6	149	15, 17
Vertebrate Morphology	3	6	149	5
Human Anatomy	3	6	148	4
Animal Histology	6	—	148	6
Animal Embryology	—	6	148	7
Animal Physiology	3	3	148	20
Animal Pathology	1	1	149	2
Analytical Chemistry (Qualitative)	6	6	145	2
Electives.				
The Nervous System	2	—	130	1
Psycho-Physics	—	2	130	2
Alternates.				
Recent and Fossil Vertebrates	3	3	148	25
Physics	2	2	146	1

*See foot-note to First-year subjects.

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THE COURSE IN MUSIC.

The qualifications required to enter the course are, *first,* a knowledge of the rudiments of music; and, *second,* the ability to play on some instrument—preferably the piano or organ.

The course extends through three years. The year begins on the first Monday in October, and is divided into three terms of ten weeks each. The first year is devoted to Harmony; the second, to Counterpoint and Composition; the third, to Form and Instrumentation.

Students are admitted without distinction of sex. The tuition fee is ten (10.00) dollars for each term, payable to the Registrar of the College, *strictly in advance.*

A certificate of study is awarded to the student who has completed the full course, passed the required examination, and presented as a thesis a satisfactory original composition. The fee for the certificate is ten (10.00) dollars.

BACHELOR OF MUSIC.—Persons holding the above certificate may at any subsequent time proceed to the degree of Bachelor of Music (Mus. Bac.) on the following conditions:

1. They must be examined in Harmony, Counterpoint and Composition. The examination will be oral or written, or both, at the discretion of the examiner.

2. They must submit to the examiner an original composition in the form of a cantata for solos and chorus, with an accompaniment for full orchestra.

3. This composition must be of such length as to require at least twenty minutes for its performance; it must contain a four-part fugue; and the accompaniment must be independent, except in the fugue.

4. The composition must be accompanied by a written statement that it is the student's own unaided effort.

For further information, apply to Professor Hugh A. Clarke, Mus. Doc., 223 South 38th street.

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THE COURSES IN ARCHITECTURE.

OFFICERS.

CHARLES C. HARRISON, LL. D., Provost.
JOSIAH H. PENNIMAN, PH. D., Dean of the College.
WARREN POWERS LAIRD, Architecture. Professor in Charge.
CHARLES E. DANA, Water Color.
HERBERT E. EVERETT, Interior Decoration.
JULIAN MILLARD, Architecture.
FRANK EDSON PERKINS, S. B., Design.
GEORGE WALTER DAWSON, Drawing.
AMOS J BOYDEN, S. B., Building Construction.
FRANK ALLISON HAYS, Pen and Ink Rendering.
LEWIS FREDERICK PILCHER, PH. B. in Arch., Architectural History.
THOMAS NOLAN, M. S., PH. B., Architecture.

LECTURERS IN ARCHITECTURE.

WALTER COPE, Architect.
FRANK MILES DAY, B. S., Architect.
EDGAR V. SEELER, Architect.

THE FOUR-YEAR COURSE IN ARCHITECTURE.

This course combines thorough professional training with the essentials of a liberal education.

During the first two years the student's time is divided about equally between subjects pertaining on the one hand to the Liberal Arts, and on the other to the Fine Arts and Technique. The former comprise English, Mathematics, Chemistry, Physics and Modern Languages, while to the latter belongs the purely professional work of the course, the last two years of which also are exclusively devoted thereto.

The course leads to the degree of Bachelor of Science in Architecture, and may be supplemented by a Post-Senior year, which provides opportunities for those who wish to carry their studies, especially in Design, beyond the possibilities of the four-year course. For requirements of admission, see pp. 61-71.

The tuition fee for this course is one hundred and sixty (160.00) dollars per annum.

THE TWO-YEAR SPECIAL COURSE.

This course is intended for architectural draughtsmen, who, desiring the advantages of technical training, are unable to devote

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the time necessary for a complete four-year course. The work is purely professional throughout both years.

The tuition fee for this course is one hundred and sixty (160.00) dollars per annum.

Admission to Advanced Standing.

Persons who have had the office practice requisite to entitle them to admission to the Two-year Special course, and who are also College graduates, holding diplomas that cover the academic work of the Four-year course, may obtain the degree in Architecture of this University by two years of study. In every such case the University reserves the right to decide whether such diploma covers satisfactorily the academic work required.

Candidates who satisfactorily fulfill the requirements for admission to the Two-year course may be admitted to advanced standing in Drawing and Water Color, provided they pass a preliminary examination in Free-hand Drawing.

This examination comprises the drawing, both in pencil and in charcoal of (*a*) a group of geometric solids, (*b*) a vase, (*c*) a cast of architectural ornament, and must be taken under the supervision of the Instructor in Drawing, at the time of entering the course. Dates of Examination are posted on the bulletin of the School of Architecture at the opening of the first term. Special students who give evidence of their ability to do this work satisfactorily are admitted at once to Junior Free-hand Drawing and Water Color, thus permitting Antique and Water Color Rendering of the Senior year in their second year. These studies are described in detail on pages 151 and 152.

The Four-Year Course.

The requirements for admission to this course are: English A and B; History A, B, C, D (any two of these four); Mathematics B, C, D and E; and French A and B, or German A and B. For details see pp. 61-71.

This course leads to the degree of Bachelor of Science in Architecture at the end of the Senior Year.

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FRESHMAN YEAR.

Subjects.	Hours per week.		For a brief description, see	
	1st Term.	2d Term.	page	course
Elementary Design (Lectures)	2	—	151	A 9
Elementary Design (Drawing)	10 (alternate weeks)	—	154	A 10
Elementary Design (Drawing)	10 (alternate weeks)	—	154	A 11
Graphics (Lectures and Drawing)	2	—	153	A 12
The Five Orders (Lectures)	—	2	151	A 13
The Five Orders	—	10	154	A 14
*Archæology	3	3	153	A 15
Composition	2	2	124	1
English Language and Analysis	1	1	127	1
French { one only	3	3	128	5
German { required	3	3	129	1
Algebra	2	2	143	2
Plane and Spher. Trigonometry	—	4	143	6
Chemistry	4	4	144	1
Physical Hygiene	1	1	—	—

SOPHOMORE YEAR.

Freehand Drawing	4	4	153	B 1
Shades and Shadows	3	—	152	B 2
Perspective	—	3	152	B 5
Elements of Design (Lectures)	2 (major part)	—	151	B 11
Elements of Design (Drawing)	7 (major part)	—	154	B 12
Order Problems	—	8 (minor part)	154	B 9
Design	—	8 (major part)	154	B 13
*Architectural History	3	3	154	B 15
Summer Work	—	—	154	Sum Wk.
Composition	1	1	124	2
Modern Novelists	2	—	125	2
Modern Essayists	—	2	126	15
French { one only	5	5	128	4 and 4a
German { required	5	5	129	2 and 3a
Analytic Geometry	3	3	143	10
Physics	2	2	146	1

* One hour lecture, two hours research.

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JUNIOR YEAR.

Subjects.	Hours per week.		For a brief description, see	
	1st Term.	2d Term.	page	course.
Freehand Drawing	4	4	153	C 1
Pen and Ink Rendering	2	2	153	C 3
Water Color Drawing	3	3	153	C 5
Sketch Design } Design }	15	15	151–2	C 6 / C 7
Mechanics of Materials	3	—	152	C 10
Graphic Statics	—	3	153	C 11
Building Construction	1	1	153	C 14
*Architectural History	3	3	154	C 15
Ventilation and Heating	1	—	150	San. Sci. 1
Plumbing and Drainage	—	1	150	San. Sci. 2
Summer Work	—	—	154	Sum. Wk.

*One hour lecture, two hours research.

SENIOR YEAR.

Antique	4	4	152	D 1
Historic Ornament	9	9	152	D 4
Water Color Rendering	3	3	151	D 5
History of Art	1	1	152	D 15
Sketch Design } Advanced Design }	25	—	152	D 6 / D 7
Thesis	—	30	152	D 8
Pen and Ink Rendering (Elective)	1	1	153	D 13
Building Construction	1	1	153	D 14
Summer Work	—	—	154	Sum. Wk.

POST-SENIOR YEAR.

Antique	4	4	152	E 10
Water Color Rendering	6	6	151	E 11
Ornament	9	6	152	E 12
Design	30	30	152	E 13

The Two-Year Special Course.

For the requirements under which students are admitted to this course, see pp. 69-71. Candidates must be at least eighteen years of age, and must have spent two years at work in the office of a practising architect; or they must have had such other technical train-

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ing as may, in the judgment of the Professor of Architecture, be considered an equivalent.

A Certificate of Proficiency is awarded to students who complete this course.

FIRST YEAR.

Subjects.	Hours per week.		For a brief description, see	
	1st Term.	2d Term.	page	course
*Archæology	3	3	153	A 15
Freehand Drawing	4	4	153	B 1
Shades and Shadows	3	—	152	B 2
Perspective	—	3	152	B 5
The Five Orders (Lectures)	3 (first part)	—	151	A 13
The Five Orders (Drawing)	12 (first part)	—	154	A 14
Elements of Design (Lectures)	3 (latter part)	3 (first part)	151	B 11
Elements of Design (Drawing)	12 (latter part)	12 (first part)	154	B 12
Order Problems	—	15 (first part)	154	B 9
Design	—	15 (latter part)	154	B 13
Pen and Ink Rendering	2	2	153	C 3
Mechanics of Materials	3	—	152	C 10
Graphic Statics	—	3	153	C 11
Building Construction	1	1	153	C 14
Ventilation and Heating	1	—	150	San. Sci. 1
Plumbing and Drainage	—	1	150	San. Sci. 2
Advanced Studies.†				
Freehand Drawing	4	4	153	C 1
Water Color Drawing	3	3	153	C 5

* One hour lecture, two hours research.

† For requirements of admission to these studies, see page 92.

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SECOND YEAR.

Subjects.	Hours per week.		For a brief description, see	
	1st Term.	2d Term.	page	course
Freehand Drawing	4	4	153	C 1
Water Color Drawing	3	3	153	C 5
*Architectural History	3	3	154	B 15
*Architectural History	3	3	154	C 15
Historic Ornament	9	9	152	D 4
Sketch Design	25	—	151-2	C 6
Design				C 7
Advanced Sketch Design	—	25	152	D 6
Advanced Design				D 7
Building Construction	1	1	153	D 14
Summer Work	—	—	154	Sum. Wk.
Advanced Studies.†				
Antique	4	4	152	D 1
Water Color Rendering	3	3	151	D 5

* One hour lecture, two hours research.

† For requirements of admission to these studies, see page 92.

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THE SPECIAL COURSE IN INTERIOR DECORATION.

This course is under the immediate supervision of Assistant Professor EVERETT, instruction being given as follows by the officers of the School of Architecture:

Assistant Professor EVERETT.—Design in Historic Ornament, Color Study, Freehand Drawing, Interior Decoration and Furniture Design.

Professor LAIRD.—The Five Orders of Architecture and Elements of Design.

Mr. MILLARD.—Shades and Shadows and Perspective.

Mr. DAWSON.—Freehand and Water-Color Drawing.

Mr. HAYS.—Pen and Ink Rendering.

Mr. PILCHER.—Instrumental Drawing.

As an adjunct to the Courses in the School of Architecture, and independently of their work, this three-year Course in Interior Decoration is offered. Its object is not only to fit its graduates for the intelligent designing of all those objects of Industrial Art that pertain to, and are included in, an artistic interior; but also, by its scheme of presenting in logical sequence the historical development of ornament from pre-historic and barbaric art, up to and including the Italian Renaissance, to impart a knowledge of those underlying principles that form the foundation of a sound and pure taste in all that branch of æsthetics included under the name of Decorative Art.

The tuition fee for this course is fifty (50.00) dollars per annum.

FURNITURE DESIGN.

Beginning with the second year, a course in the designing of furniture is offered as an alternative to the regular course in Design, thus allowing those students whose tastes and developments show a more decided appreciation for form than for color to specialize in that direction.

REQUIREMENTS FOR ADMISSION.

Admission to the course is granted, without distinction of sex, to persons of not less than eighteen years of age, who possess a knowledge of the rudiments of drawing. See pp. 69-71.

CERTIFICATE.

A Certificate of Proficiency is granted upon completion of the course.

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FIRST YEAR.

Subjects.	Hours per week.		For a brief description, see	
	1st Term.	2d Term.	page	course
Freehand Drawing	4	4	156	B 1
Instrumental Drawing	4	—	156	G 6
Water Color Drawing	3	3	156	C 5
Color Study	—	3	155	G 2
Historic Ornament	9	9	155	D 4

SECOND YEAR.

Freehand Drawing	4	4	155	H 1
Shades and Shadows	3	—	156	B2
Perspective	—	3	152	B5
Water Color Drawing	3	3	156	H 9
Color Study	—	3	155	H 2
Pen and Ink Rendering	2	2	156	C 3
Decorative Design*	12	12	155	H 5
Furniture Design*	12	12	155	H 8

THIRD YEAR.

Freehand Drawing	4	4	155	J 1
Water Color Drawing	3	3	156	J 6
The Five Orders (Lectures)	3 (first part)	—	155	A 13
The Five Orders (Drawing)	3 (first part)	—	155	J 7
Elements of Design (Lectures)	3 (latter part)	3 (first part)	155	B 11
Elements of Design (Drawing)	3 (latter part)	3 (first part)	155	J 9
Furniture Design†	15	15	155	J 4
Interior Design†	15	15	155	J 5

*and †: Alternatives.

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THE COURSES IN SCIENCE AND TECHNOLOGY.

These courses cover five years—two years of general literary and scientific study, and three years devoted chiefly to technical training in one of the following subjects: Chemistry, Civil Engineering, or Mechanical Engineering. Students in regular standing receive at the end of the Senior year the general degree of Bachelor of Science, and at the end of the Post-Senior year the degree of Master of Science. The technical degree appropriate to the course pursued may be conferred upon Masters of Science of two years' standing, who have made satisfactory progress in their professions, and have presented an acceptable thesis. This arrangement of study satisfactorily unites the advantages of liberal culture with the definite preparation for professional life, the first two years giving the broad foundation that will enable the student to decide what his future work shall be. As the work of the first two years is planned to give the proper preparation for the technical work of the last three years, students will not be allowed to change at the end of the Sophomore year into any course not named above.

The work of the Freshman and Sophomore years in Science includes English, History, Mathematics, Drawing, Chemistry, Physics, Physical Hygiene, and one modern language (German or French). These subjects are all prescribed. In the years devoted to technical instruction are included courses in English, the Modern Languages, History, Philosophy, and Political Economy; with the necessary instruction in pure and applied Mathematics, and in the scientific branches allied to the principal subject of the course. Special students, who have had the requisite training in Mathematics, Physics and Drawing, are admitted to these three-year technical courses. See pp. 69-71.

ADMISSION, ETC.

The requirements for admission to these courses are: English A and B; History A, B, C and D (any two of these four); Mathematics B, C, D and E; and two of the three languages, Latin A, B and D'; German A and B; and French A and B. For details, see pp. 61-71.

The tuition fee for the Freshman and Sophomore years in these courses is one hundred and sixty (160.00) dollars per annum; for the Junior, Senior and Post-Senior years, two hundred (200.00) dollars per annum.

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COURSES IN SCIENCE AND TECHNOLOGY.*

FRESHMAN CLASS.

Subjects.	No. of hours per week.		For a brief description, see	
	1st Term	2d Term	page	number
Composition	3	3	124	1
English Language and Analysis	1	1	127	1
Algebra	4	—	143	2
Trigonometry	—	4	143	6
General Chemistry	4	4	144	1
Mechanical Drawing	3	3	159	1 2
American History { one only	3	3	132	7
European History { required	3	3	133-4	8 & 12
German { one only	4	4	129	1
French { required	4	4	128	5
Physical Hygiene	1	1	—	—

SOPHOMORE CLASS.

Composition	2	2	124	2
Modern Novelists and Essayists	2	2	125-6	1 & 2
History of Europe since 1789 { History is	3	3	134	5 & 6
Descriptive Geometry { elective with	2	2	159	K 2
Analytic Mechanics { the other	—	2	147	11
Freehand Lettering { three subjects (See note.)	2	—	159	I 1
Analytic Geometry	4	—	142	11
Calculus	—	4	142	15
Mass Physics, Energy	2	—	147	3
Sound and Heat	—	2	147	4
Chemistry (Qualitative)	4	4	145	2
German, Reading and Composition { only one	3	3	129	2
German, Scientific Reading { language	2	2	129	3a
French, Reading and Composition { required	3	3	128	4
French, Scientific Reading {	2	2	128	4a

*An outline of the work of the three technical divisions of this course in the Junior, Senior and Post-Senior years is given under the heads of Chemistry, p. 115; Civil Engineering, p. 109; Mechanical Engineering, p. 102.

NOTE.—Students intending to elect Chemistry in Junior year may elect History; others are required to take Descriptive Geometry, Analytic Mechanics, and Freehand Lettering.

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THE COURSES IN MECHANICAL AND ELECTRICAL ENGINEERING.

OFFICERS.

CHARLES C. HARRISON, LL. D., Provost.
JOSIAH H. PENNIMAN, PH. D., Dean of the College.
HENRY W. SPANGLER, M. S., Dynamical Engineering. Professor in Charge.
A. WILLIAM SCHRAMM, B. S., M. E., Electrical Engineering.
LUCIEN E. PICOLET, Mechanical Drawing and Designing.
JOHN J. MORRIS, Wood Working.
HUGH W. MCCONNELL, Iron Working.
EDWARD H. WALDO, A. B., M. E., Electrical Engineering.
ARTHUR M. GREENE, JR., B. S., M. E., Mechanical Engineering.
CLINTON R. STEWART, B. S. in E. E., Mechanical Engineering.
MERRILL VANG. SMITH, M. E., Mechanical Engineering.

Two courses are offered leading to degrees in Mechanical Engineering, and one leading to a degree in Electrical Engineering.

The first of these courses in Mechanical Engineering requires the preparation of the Freshman and Sophomore Classes in the Courses in Science and Technology, and is known as the Mechanical Engineering section of that course. This course leads to the degree of Bachelor of Science at the end of the Senior year, and to the degree of Master of Science at the end of the Post-Senior year.

The second course in Mechanical Engineering covers a period of four years, and leads to the degree of Bachelor of Science in Mechanical Engineering.

The course in Electrical Engineering covers a period of four years, and leads to the degree of Bachelor of Science in Electrical Engineering.

Graduates of any of these courses who continue in the practice of their profession, receive the appropriate technical degree three years after the Bachelor's degree has been conferred, upon presentation of an acceptable thesis.

In the four-year courses new students are admitted to advanced standing only on condition that they have pursued similar courses elsewhere.

Special and partial students are received only in the course in Science and Technology, under the conditions stated on pages 69-71.

The tuition fee is two hundred (200.00) dollars per annum.

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METHODS OF STUDY.

The technical instruction in the class room is carried on to a large extent with the aid of text-books, lectures being given only to supplement them.

At the beginning of the first year a short course in nomenclature renders the student familiar with the names and uses of the various kinds and parts of machinery. The subject of applied mechanics is taught under the heads of graphic statics, statics, hydrostatics and hydraulics, kinematics and dynamics. The work in steam engineering covers the subject of thermodynamics, and the designing of steam engines and boilers. In hydrodynamics, the object of the course is to teach the theory and practice of building water-wheels and turbines. In electrodynamics, the general methods of generating, transmitting and using the electric current, together with the details of the apparatus required, are covered in the course.

Students taking Electrical Engineering are given more extended drilling in electrical subjects than those taking Mechanical Engineering; although the object of the instruction is to give to every student such a fundamental knowledge of the various methods of developing, transmitting and utilizing power that he will be able to take up any of the general divisions of mechanical or electrical engineering work.

The technical work is carried on entirely in the engineering laboratory, where about twelve thousand square feet of floor space are devoted exclusively to technical training. The apparatus used for laboratory work is modern and ample in quantity for the work to be done, and is so utilized that students are required to make most of the ordinary tests required of the mechanical or electrical engineer.

The department Library is well equipped with the latest works relating to mechanical and electrical engineering, together with the best technical and trade journals.

COURSES IN MECHANICAL ENGINEERING.

(Section III of Courses in Science and Technology.)

The requirements for admission to this course, together with an outline of the studies in the Freshman and Sophomore years, are given on pages 99-100.

This course leads to the degree of B. S. at the end of the Senior year, and M. S. at the end of the Post-Senior year.

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JUNIOR CLASS.

SUBJECTS.	No. of hours per week. 1st Term	2d Term	For a brief description, see page	number
Statics	2	2	163	1
Drawing	3	3	162	4
Steam Engine	—	2	164	5
Valve Gears	—	2	164	6
Shop	6	6	162	12
Composition	1	1	125	3
English Literature	2	2	126	3, 7
German { one only	3	3	129	4
French { required	3	3	128	3
Calculus	4	—	142	16
Physics	3	3	147	5, 6
Analytic Mechanics	2	—	147	11

SENIOR CLASS.

Hydraulics	—	3	164	2
Drawing	3	3	162	4*a*
Steam Engine	2	2	163	8
Steam Boilers	2	2	163	9
Electricity	2	2	161	11
Shop	9	3	163	13
Mechanical Laboratory	—	3	164	15*a*
Electrical Laboratory	3	—	162	21*a*
Graphics	2	2	161	22
Political Economy	2	2	138	17
Physical Measurements	1	1	147	7
Physical Laboratory	3	3	147-8	8, 9
Metallurgy	—	2	150	1

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POST-SENIOR CLASS.

Subjects.	No. of hours per week.		For a brief description, see	
	1st Term	2d Term	page	number
Hydrodynamics	2	2	161	3
Kinematics	2	2	160	7
Thermodynamics	3	2	160	14
Mechanical Laboratory	6	3	163	15
Design	3	3	162	17
Shop Visits	3	—	160	18
Specifications (optional)	—	1	160	19
Electrodynamics	3	—	161	20
Electrical Laboratory	6	3	162	21
Dynamo Design	—	2	161	21*b*
Thesis	—	9	—	—
Electrodynamics	2	3	161	21*c*
Contracts	1	1	137	4

Four-Year Course.

The requirements for admission to this course are: English A and B; History A, B, C, D (any two of these four); Mathematics B, C, D, E and F; Physics; and French A and B, or German A and B. For details see pp. 61-71.

This course leads to the degree of B. S. in Mechanical Engineering at the end of the Senior year.

FRESHMAN CLASS.

Subjects.	No. of hours per week.		For a brief description, see	
	1st Term	2d Term	page	number
Descriptive Geometry	2	2	161	4*b*
Drawing	3	3	162	4*c*
Steam Engine	—	2	164	5
Shop Work	6	3	163	12*a*
Composition	2	2	124	1
English Language and Analysis	1	1	127	1
French (one only required)	3	3	128	5
German (one only required)	3	3	129	1
Trigonometry	4	—	143	8
Algebra	—	4	143	2
Physics	2	2	147	3, 4
Chemistry	4	4	144	1

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SOPHOMORE CLASS.

Subjects.	No. of hours per week. 1st Term	2d Term	For a brief description, see page	number
Drawing	3	3	162	4
Kinematics	3	—	164	7*a*
Shop Work	6	6	163	12*b*
English Literature	—	2	125	2
French (one only required)	3	3	128	4*a*
German (one only required)	3	3	129	3
Analytic Geometry	4	—	142	11
Calculus	—	4	142	15
Physics	3	3	147	5, 6
Chemistry	4	4	145-6	2, 13
Analytic Mechanics	—	2	147	11
Composition	1	—	124	2

JUNIOR CLASS.

Statics	2	2	163	1
Hydraulics	—	3	164	2
Drawing	3	3	162	4*a*
Valve Gears	—	2	163	6
Steam Boilers	2	2	163	9
Electricity	2	2	161	11
Mechanical Laboratory	3	3	164	15*a*
Electrical Laboratory	3	3	162	21*a*
Graphics	2	2	161	22
Calculus	4	—	142	16
Physical Measurements	1	1	147	7
Physical Laboratory	3	3	147-8	8, 9
Metallurgy	—	2	150	1
Analytic Mechanics	2	—	147	11

SENIOR CLASS.

Hydrodynamics	2	2	161	3
Steam Engine	2	2	163	8
Thermodynamics	3	2	160	14
Mechanical Laboratory	6	3	163	15
Marine Engineering	1	1	160	16
Design	3	3	162	17
Shop Visits	3	—	160	18
Specifications (optional)	—	1	160	19
Electrodynamics	3	—	161	20
Electrical Laboratory	3	3	162	21*d*
Thesis	—	9	—	—
Electrodynamics	2	3	161	21*c*
Contracts	1	1	137	4

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COURSE IN ELECTRICAL ENGINEERING.

FOUR-YEAR COURSE.

The requirements for admission to this course are the same as for the Four-Year course in Mechanical Engineering. See page 104.

This course leads to the degree of B. S in Electrical Engineering at the end of the Senior year.

FRESHMAN CLASS.

Same as Four-Year course in Mechanical Engineering. See page 104.

SOPHOMORE CLASS.

Same as Four-Year course in Mechanical Engineering. See page 105.

JUNIOR CLASS.

SUBJECTS.	No. of hours per week.		For a brief description, see	
	1st Term	2d Term	page	number
Statics	2	2	163	1
Hydraulics	—	3	164	2
Drawing	3	3	162	4*a*
Valve Gears	—	2	164	6
Electricity	2	2	161	11
Telegraphy and Telephony	2	2	162	11*a*
Mechanical Laboratory	3	3	164	15*a*
Electrical Laboratory	3	3	162	21*a*
Graphics	2	2	161	22
Calculus	4	—	142	16
Physical Measurements	1	1	147	7
Physical Laboratory	6	6	147-8	8, 9
Analytic Mechanics	2	—	147	11

SENIOR CLASS.

Hydrodynamics	2	2	161	3
Steam Engine	2	—	163	8
Steam Boilers	—	2	163	9
Thermodynamics	3	2	160	14
Mechanical Laboratory	3	3	164	15*a*
Design	3	3	162	17
Shop Visits	3	—	160	18
Specifications (optional)	—	1	160	19
Electrodynamics	3	—	161	20
Electrical Laboratory	6	3	162	21
Dynamo Design	—	2	161	21*b*
Alternating Currents	1	1	160	24
Thesis	—	9	—	—
Electrodynamics	2	3	161	21*c*
Contracts	1	1	137	4

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THE COURSES IN CIVIL ENGINEERING.

OFFICERS.

CHARLES C. HARRISON, LL. D., Provost.
JOSIAH H. PENNIMAN, PH. D., Dean of the College.
EDGAR MARBURG, C. E., Civil Engineering. Professor in Charge.
WALTER L. WEBB, C. E., Civil Engineering.
WILLIAM EASBY, JR., C. E., Civil Engineering.
GEORGE ROMMEL, JR., B. S. in C. E., Civil Engineering.

Two distinct courses are offered to students in Civil Engineering: the Four-year course; and the one included in the Courses in Science and Technology (Civil Engineering Section).

The latter requires the preparation of the Freshman and Sophomore years in the Course in Science and Technology. In this course the technical work begins with the Junior year, and is pursued throughout the Senior and Post-Senior years, the entire course thus covering a period of five years. This course leads to the degree of Bachelor of Science at the end of the Senior year, and to the degree of Master of Science at the end of the Post-Senior year.

The Four-year course begins in the Freshman year, and embraces the same amount of instruction in Mathematics, Physics, Chemistry, and its allied subjects, as well as in the strictly technical branches; but the time devoted to the general culture studies, such as Modern Languages, English Literature and similar topics, is considerably reduced. This course leads to the degree of Bachelor of Science in Civil Engineering.

Graduates of either of these courses who continue in the practice of their profession, receive the technical degree of Civil Engineer (C. E.), on the conditions stated on page 53.

Special and Partial students are admitted only under the conditions stated on pages 69-71.

The tuition fee is two hundred (200.00) dollars per annum.

METHODS OF INSTRUCTION.

The courses in Civil Engineering are designed to meet, as thoroughly as practicable, the demands of modern engineering practice. The studies are sufficiently advanced and comprehensive to ensure

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to the graduate that broad technical training essential to the successful prosecution of his subsequent professional work.

Text-books are used in general as a basis of instruction. Supplemental matter is given, where needed, in the form of notes and lectures. The aim is to keep the class work intimately in touch with the methods of practice. Original problems of a distinctly practical nature are frequently assigned, which tend to throw the students largely on their own resources, and serve both to stimulate their interest in the subject and to afford them valuable training in the application of theoretical knowledge to a variety of practical conditions.

The equipment of surveying instruments includes a theodolite reading to single seconds, and a level of precision, in addition to an outfit of ordinary transits, levels, sextants, etc. After the students have been made familiar with the adjustment and use of the various instruments, complete surveys are undertaken. During the second term a special farm survey is made, in addition to the regular weekly field practice. During the summer, two entire weeks are devoted to an extended topographic and hydrographic survey, and a like period to the survey of a short line of railroad. The data collected in the field serve as a basis for subsequent class-room instruction in the preparation of detailed drawings and estimates of quantities and cost.

The courses in the Theory of Stresses are supplemented by courses covering the practical application of the principles involved. Complete designs, accompanied by detail drawings, are made of a plate girder and a pin-connected truss bridge, in strict accordance with the methods of current practice.

Similarly, the courses in Hydraulics and Sanitary Engineering are followed by a course in the general design of a distributing system for a municipal water supply, and by general designs for the sewerage of a town. The subject of the purification of public water supplies is treated by special lectures.

The instruction relating to the materials of construction is supplemented by work in the Civil Engineering Testing Laboratory. The latter is equipped with a 100,000 pounds testing machine suitable for making tensile, compressive and transverse tests of steel, iron, stone, timber, etc. Cement and mortar tests are made on a machine of 2000 pounds capacity. Special apparatus is provided for the testing of paving brick. Instruction is given to all students in making the more common tests of materials. The apparatus is further at the disposal of advanced students in connection with experimental thesis work.

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Tours of inspection to manufacturing plants and to engineering works, completed or in course of construction, are made from time to time during the year, but only in so far as they have a direct bearing on the work of the class-room.

During the summer vacation following the Sophomore and Junior years each student is required to prepare a Memoir descriptive of some engineering work or manufacturing plant, based on his direct personal inquiries and observations.

A thoroughly elaborated thesis on a professional subject is required of every candidate for a degree, except that of Bachelor of Science, at the end of the Senior year of the Civil Engineering section of the Courses in Science and Technology. These theses must embody either a design or a review of an engineering plant, process or structure; or the results of an experimental investigation: they must be fully illustrated by drawings and models where needed, and upon graduation must be deposited with the University.

The department Library contains an excellent collection of the most recent technical works, supplementing the very complete collection of bound volumes of engineering journals and of the transactions of engineering societies in the Evans Rogers library. The leading technical journals are kept on file and are constantly accessible to the students.

COURSES IN CIVIL ENGINEERING.

(SECTION II OF THE COURSES IN SCIENCE AND TECHNOLOGY.)

The requirements for admission to this course, and the outline of the course in Freshman and Sophomore years, are given on pages 99 and 100.

This course leads to the degree of B. S. at the end of Senior year, and M. S. at the end of Post-Senior year.

JUNIOR CLASS.

SUBJECTS.	No. of hours per week.		For a brief description, see	
	1st Term.	2d Term.	page	number
Mechanics of Materials	4	—	156	A 1
Surveying, Theory	2	1	158	D 1
Surveying, Practice	3 and two entire weeks.	3	158	D 2
Railroad Surveying, Theory	—	4	157	E 1

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JUNIOR CLASS—Continued.

Subjects.	No. of hours per week. 1st Term.	No. of hours per week. 2d Term.	For a brief description, see page	For a brief description, see number
Railroad Surveying, Practice	—	3 (second half) and two entire weeks.	158	E 2
Hydraulics	—	4	159	H 1
Pen Topography	—	2	159	J 1
Composition	1	1	125	3
English Literature	2	2	126	3 & 7
German { one only	2	2	129	4
French { required	2	2	128	3
Calculus	4	—	142	16
Analytic Mechanics	2	—	147	11
Physics, Radiation and Magnetism	3	—	147	5
Physics, Electricity	—	3	147	6

SENIOR CLASS.

Framed Structures	—	4	156	B 2
Graphic Statics	—	2	156	B 1
Bridge Designing	—	2	157	B 4
Masonry	3	—	157	C 1
Railroad Construction and Equipment	3	—	157	E 3
Geodesy, Theory	—	1	158	F 1
Geodesy, Practice	—	3 (second half)	158	F 2
Roads and Pavements	1	—	158	G 1
Sanitary Engineering	—	2	159	H 2
Colored Topography	2	—	159	J 2
Map Drawing	2	—	159	J 3
Stereotomy	1	—	160	K 4
Political Economy	2	2	137	17
Astronomy	3	—	144	1
Practical Astronomy	—	3	144	2
Physical Measurements, Theory	1	1	147	7
Physical Laboratory	3	3	147-8	8 & 9
Steam Engines	2	2	160	23

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POST-SENIOR CLASS.

Subjects.	No. of hours per week. 1st Term.	2d Term.	For a brief description, see page	number-
Materials of Construction	2	2	156	A 2
Testing Laboratory	2	2 (first half)	157	A 3
Framed Structures	2	—	156	B 3
Bridge Designing	4	4	157	B 5
Railroad Economics	3	—	157	E 4
Geodesy	—	2	158	F 3
Hydraulic Works	4	—	159	H 3
Inspection Tours	at hours assigned		157	L 1
Thesis	—	6	157	M 1
Mineralogy	2	2	150	5
Determinative Mineralogy	2	1	150	3
Geology	2	2	151	3
Contracts	1	1	137	4
Metallurgy	—	2	150	1

Four-Year Course.

The requirements for admission to this course are: English A and B; History A, B, C, D (any two of these four); Mathematics B, C, D, E and F; Physics; and German A and B, or French A and B. For details, see pp. 61-71.

This course leads to the degree of B. S. at the end of the Senior year.

FRESHMAN CLASS.

Pen Topography	—	2	159	J 1
Lettering	2	—	159	I 1
Projections	—	2	159	K 1
Mechanical Drawing	4	4	159	I 2
Surveying, Theory	2	1	158	D 1
Surveying, Practice	3 and two entire weeks	3	158	D 2
Trigonometry	4	—	143	8
Algebra	—	4	143	2
Mass Physics, Energy	2	—	147	3
Physics, Sound and Heat	—	2	147	4
Composition	2	2	124	1
English Language and Analysis	1	1	127	1
German { one only required	3	3	129	1
French { one only required	3	3	128	5
Chemistry, Inorganic	4	4	144	1

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SOPHOMORE CLASS.

Subjects.	No. of hours per week. 1st Term.	2d Term.	For a brief description, see page	number
Colored Topography	2	—	159	J 2
Map Drawing	2	—	159	J 3
Descriptive Geometry	3	—	159	K 2
Mechanical Drawing	2	—	158	J 3
Roads and Pavements	1	—	158	G 1
Railroad Surveying, Theory	—	4	157	E 1
Railroad Surveying, Practice	—	3 (second half) and two entire weeks	158	E 2
Composition	—	2	124	2
English Literature	2	—	125	2
German (one only required)	3	3	129	3
French (one only required)	3	3	128	4a
Analytic Geometry	4	—	142	11
Calculus	—	4	142	15
Analytic Mechanics	—	2	147	11
Physics, Radiation and Magnetism	3	—	147	5
Physics, Electricity	—	3	147	6
Chemistry, Qualitative	4	4	145	2

JUNIOR CLASS.

Mechanics of Materials	4	—	156	A 1
Graphic Statics	—	2	156	B 1
Framed Structures	—	4	156	B 2
Bridge Designing	—	2	157	B 4
Railroad Construction and Equipment	3	—	157	E 3
Hydraulics	—	4	159	H 1
Sanitary Engineering	—	2	159	H 2
Stereotomy	1	—	160	K 4
Geodesy, Theory	—	1	158	F 1
Geodesy, Practice	—	3 (second half)	158	F 2
Calculus	4	—	142	16
Physical Measurements, Theory	1	1	147	7
Physical Laboratory	3	3	147-8	8 & 9
Analytic Mechanics	2	—	147	11
Mineralogy	2	2	150	5
Determinative Mineralogy	2	1	150	3

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SENIOR CLASS.

Subjects.	No. of hours per week.		For a brief description, see	
	1st Term.	2d Term.	page	number
Materials of Construction	2	—	156	A 2
Testing Laboratory	2	(first half)	157	A 3
Framed Structures	2	—	156	B 3
Bridge Designing	4	4	157	B 5
Masonry	3	—	157	C 1
Railroad Economics	3	—	157	E 4
Geodesy	—	2	158	F 3
Hydraulic Works	4	—	159	H 3
Inspection Tours	at hours assigned		157	L 1
Thesis	—	6	157	M 1
Steam Engines	2	2	160	23
Astronomy	3	—	144	1
Practical Astronomy	—	3	144	2
Metallurgy	—	2	150	1
Geology	2	2	151	3
Contracts	1	1	137	4

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THE COURSES IN CHEMISTRY.

OFFICERS.

CHARLES C. HARRISON, LL. D., Provost.
JOSIAH H. PENNIMAN, PH. D., Dean of the College.
EDGAR F. SMITH, PH. D., Chemistry. Director of the JOHN HARRISON Laboratory of Chemistry.
OWEN L. SHINN, PH. D., General Chemistry.
J. BIRD MOYER, PH. D., General Chemistry.
DANIEL L. WALLACE, Analytical Chemistry.
WALTER T. TAGGART, B. S., Analytical Chemistry.
HERMANN FLECK, PH. D., Organic Chemistry.

Two courses in Chemistry are offered. The first extends over three years, and is open to students who have taken the work prescribed in the Freshman and Sophomore years in Science and Technology. The degree of Bachelor of Science is conferred at the end of the Senior year, and that of Master of Science at the end of the Post-Senior year. This course is known as the Chemical Section of the Courses in Science and Technology.

The other course in Chemistry is known as the Four-year course. The technical character of the work in the lower years is much more detailed than in the Courses in Science and Technology; and by the end of Senior year the student has received the same amount of technical instruction as in the five years of the Course in Science and Technology. The Four-year course leads to the degree of Bachelor of Science in Chemistry.

Special students are received only in the Courses in Science and Technology under the conditions stated on pages 69-71.

Partial students are admitted under the conditions stated on page 69.

The tuition fee is two hundred (200.00) dollars per annum.

METHODS OF STUDY.

The chemistry of the first year consists in the execution of a rather extended series of experiments upon the metals and non-metals. The student omits only those of greater difficulty, and such as require a skilled manipulator for their performance. In addition, he attends lectures and recitations, and solves numerous examples based upon the various reactions that he conducts practically. The skill and familiarity with chemical methods acquired in this way will fully prepare him for the work of the second year, which is mainly analytical, though considerable time is allotted to the preparation of a selected series of inorganic salts.

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In quantitative analysis he is given every opportunity to familiarize himself with purely scientific methods in gravimetric, electrolytic and volumetric analysis; also with gas analysis and the methods of technical analysis applied in the various branches of chemistry. The instruction in theoretical chemistry is imparted by lectures; that in applied chemistry by lectures not only by the regularly appointed corps of instructors, but also by invited specialists. It is further supplemented by frequent visits to chemical plants in this and adjacent cities. The lectures and recitations in organic chemistry are conducted parallel with practical work upon this subject. The aim is to have the student prepare typical substances from the whole field of organic chemistry. The most recent methods of analysis peculiar to this field receive due attention. In the last year the student pursues advanced work in the direction of pure inorganic, organic, or technical chemistry. The solution of some problem in one of these branches will constitute the thesis that must be prepared before presenting himself for the final examination.

The JOHN HARRISON Laboratory of Chemistry provides a complete modern equipment for the prosecution of chemical studies, both undergraduate and graduate. A pamphlet containing plans of the Laboratory will be mailed upon application to the Director.

COURSES IN CHEMISTRY.

(SECTION I OF THE COURSES IN SCIENCE AND TECHNOLOGY.)

The requirements for admission to this course, and an outline of the Freshman and Sohpomore years, are given on pages 99-100.

This course leads to the degree of B. S. at the end of Senior year, and M. S. at the end of Post-Senior year.

JUNIOR CLASS.

SUBJECTS.		No. of hours per week.		For a brief description, see	
		1st Term	2d Term	page	number
Qualitative Analysis		12	12	145	2
Assaying		4	4	146	12
Mineralogy		2	2	150	1
Composition		1	1	125	3
English Literature	one only	2	2	126	3 & 7
Mediæval History	required	2	2	133	10
German	one only	2	2	129	4
French	required	2	2	128	3
Physics		3	3	147	5 & 6

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SENIOR CLASS.

Subjects.	No. of hours per week. 1st Term	2d Term	For a brief description, see page	number
Quantitative Analysis	6	6	145	3
Organic Chemistry	2	2	145	4
Applied Chemistry	2	2	145	7
Mineralogy, Descriptive	2	2	150	2
Mineralogy, Determinative	2	2	150	3
Political Economy	2	2	138	17
Physical Measurements	3	3	147	7
Physical Laboratory	3	3	147-8	8 & 9
Metallurgy	1	1	150	1

POST-SENIOR CLASS.

Practical Organic Chemistry	10	10	145	6
Analysis of Foods, etc.	6	6	146	8
Theoretical Chemistry	1	1	146	9
Electro-Chemistry	—	1	146	10
Seminary	1	1	146	11
Geology	2	2	151	3
Contracts	1	1	137	4

Four-Year Course.

The requirements for admission to this course are: English A and B; History A, B, C, D (any two of these four); Mathematics B, C, D and F; Physics; and either French A and B, or German A and B. For details see pp. 61-71.

This course leads to the degree of B. S. in Chemistry.

FRESHMAN CLASS.

General Chemistry	8	8	144	1
Algebra	2	2	143	1
Solid Geometry	2	—	144	3
German (one only required)	3	3	129	1
French (one only required)	3	3	128	5
Composition	2	2	124	1
English Language and Analysis	1	1	127	1
Freehand Drawing	2	2	153	1 1
Elementary Practical Physics	4	4	146	2

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SOPHOMORE CLASS.

Subjects.		No. of hours per week. 1st Term	2d Term	For a brief description, see page	number
Qualitative Analysis		18	18	145	2
Composition		1	1	124	2
English Literature		2	2	125-6	1 & 2
German	only one language required	3	3	129	2
Scientific German		2	2	129	3*a*
French		3	3	128	4
Scientific French		2	2	128	4*a*
Mineralogy		2	2	150	1
Optional Studies—Mathematics, Botany, Physics.					

JUNIOR CLASS.

Quantitative Analysis		13	13	145	3
Applied Chemistry		2	2	145	7
Assaying		4	4	146	12
Ethics		—	2	130	2
German	one only required	2	2	129	4
French		2	2	128	3
English Literature		2	2	126	3 & 7
Mineralogy, Descriptive		2	2	150	2
Mineralogy, Determinative		2	1	150	3
Metallurgy		1	1	150	1
Optional Studies—Physics, Microscopic Botany, Biology.					

SENIOR CLASS.

Organic Chemistry (tests)	2	2	145	4
Practical Organic Chemistry	12	12	145	6
Analysis of Foods, etc.	10	—	146	8
Theoretical Chemistry	1	1	146	9
Electro-Chemistry	—	10	146	10
Political Economy	2	2	138	17
Geology	2	2	151	3
Contracts	1	1	137	4

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COURSES IN CHEMICAL ENGINEERING.

OFFICERS.

CHARLES C. HARRISON, LL. D., Provost.
JOSIAH H. PENNIMAN, PH. D., Dean of the College.
EDGAR F. SMITH, PH. D., Chemistry. Director of the JOHN HARRISON Laboratory of Chemistry.
HENRY W. SPANGLER, M. S., Dynamical Engineering.
OWEN L. SHINN, PH. D., General Chemistry.
J. BIRD MOYER, PH. D., General Chemistry.
WALTER T. TAGGART, B. S., Analytical Chemistry.
DANIEL L. WALLACE, Analytical Chemistry.
HERMANN FLECK, PH. D., Organic and Technical Chemistry.
A. WILLIAM SCHRAMM, B. S., M. E., Electrical Engineering.
LUCIEN E. PICOLET, Drawing.
CHARLES W. SCRIBNER, A. B., M. E., Mechanical Engineering.
JOHN J. MORRIS, Wood Working.
HUGH W. MCCONNELL, Iron Working.
EDWARD H. WALDO, A. B., M. E., Electrical Engineering.
ARTHUR M. GREENE, JR., B. S., M. E., Mechanical Engineering.
CLINTON R. STEWART, B. S. in E. E., Mechanical Engineering.

This course covers a period of four years and leads to the degree of Bachelor of Science in Chemical Engineering. It has been arranged with the view of enabling chemical students to familiarize themselves with mechanical subjects to such a degree that they will be able to overcome the difficulties which present themselves to those engaged in extending the applications of chemistry.

The chemical studies introduced into this course will not only give the student a thorough acquaintance with the fundamental principles of chemical science, but will also afford him a complete drill in analysis, and in the preparation of inorganic and organic products. Instruction in technical analysis and applied chemistry is reserved until the last year. Frequent excursions are made to adjacent plants for the purpose of studying practical processes in operation, and examining in detail the mechanical appliances in use. Three years after graduation those Bachelors of Science who have shown marked progress in their professions, and who submit a satisfactory thesis, may be granted the technical degree of Chemical Engineer (Ch. E.).

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ADMISSION, ETC.

The requirements for admission to this course are: English A and B; History A, B, C, D (any two of these four); Mathematics B, C, D, E and F; Physics; and German A and B, or French A and B. For details, see pp. 61-71.

This course leads to the degree of B. S. in Chemical Engineering.

The tuition fee is two hundred (200.00) dollars per annum.

FRESHMAN CLASS.

Subjects.	No. of hours per week. 1st Term	2d Term	For a brief description, see page	number
General Chemistry	6	6	144	1
Drawing	3	3	162	4*c*
Steam Engine	—	2	164	5
Shop Work	2	2	163	12*a*
Composition	2	2	124	1
English Language and Analysis	1	1	127	1
French { one only	3	3	128	5
German { required	3	3	129	1
Trigonometry	4	—	143	8
Algebra	—	4	143	2
Physics	2	2	147	3 & 4

SOPHOMORE CLASS.

Analytical Chemistry (Qualitative)	10	10	145	2
Statics	—	2	163	1
Drawing	3	3	162	4
Kinematics	3	—	164	7*a*
Shop Work	2	2	163	12*b*
Composition	1	—	124	2
English Literature	—	2	125	2
French { one only	3	3	128	4
German { required	3	3	129	3
Analytic Geometry	4	—	142	11
Calculus	—	4	142	15
Physics	3	3	147	5 & 6
Analytic Mechanics	—	2	147	11

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JUNIOR CLASS.

Subjects.	No. of hours per week.		For a brief description, see	
	1st Term	2d Term	page	number
Analytical Chemistry (Quantitative)	7	—	145	3
Organic Chemistry	2	2	145	4
Assaying	4	4	146	12
Statics	2	—	163	1
Hydrostatics	—	2	164	2
Electrical Measurements	2	2	161	11
Mechanical Laboratory	3	3	164	15*a*
Electrical Laboratory	3	3	162	21*a*
Graphics	2	2	161	22
Physics	3	3	147	7
Physical Laboratory	3	3	147-8	8, 9
Metallurgy	1	1	150	1
Calculus	4	—	142	16
Analytic Mechanics	2	—	147	11

SENIOR CLASS.

Organic Chemistry	12	12	145	6
Applied Chemistry	2	2	145	7
Electro-Chemistry	—	1	146	10
Steam Engine	2	—	163	8
Steam Boilers	2	—	163	9
Thermodynamics	3	2	160	14
Designing	3	3	162	17
Electrodynamics	3	3	161	20
Electrical Laboratory	3	3	162	21*d*
Contracts	1	1	137	4

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SUBJECTS OF INSTRUCTION

OFFERED BY

THE COLLEGE FACULTY.

All of the subjects in which instruction is offered by the College Faculty are enumerated and described in detail below. The description of the grouping of the various courses prescribed for all candidates for a Bachelor's degree will be found on pages 72-120.

The numerals prefixed to the following courses are for reference only. Except where otherwise specified, courses extend throughout the year.

HEBREW.

The courses in Hebrew are offered as electives. They cover the elements of Hebrew Grammar, and include translations of selected chapters from historical and poetical portions of the Old Testament. They serve as a preparation for students who intend to pursue theological studies, as well as an introduction to graduate work in Semitic languages.

Dr. SAILER:

1. For beginners. After exercises in reading and pronunciation, the outlines of the grammar are taken up, a small vocabulary being presented with each lesson to serve as a basis for written exercises. When the general principles have been mastered a few historical chapters are gone over carefully, and the grammar studied inductively; while at the same time Strack's *Hebrew Grammar* is reviewed more in detail, and the exercises from English into Hebrew are commenced. The course is designed to lay solid foundations in grammar and vocabulary. Elective for Juniors in Arts and Science Two hours.

2. Strack's *Grammar* is once more reviewed, and the exercises from English into Hebrew completed. Selections from both historical and poetical books will be read, special attention being given to syntax. Passages will also be read at sight. Elective for Seniors in Arts and Science who have taken course 1. Two hours.

SANSKRIT.

Professor EASTON:

1. Whitney's *Sanskrit Grammar.* Lanman's *Reader.* Two hours.

2. Lanman's *Reader.* Selected Hymns from the Veda. Two hours.

These courses are open as free electives to Juniors and Seniors. Course 2 is open only to those who have taken 1.

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GREEK.

Course 1, taken by Freshmen, is intended more particularly to strengthen and extend the foundations already laid in the preparatory school. The fixing of the forms and the simple principles of syntax well in the mind, and the acquisition of a well-ordered and somewhat extensive Attic vocabulary, are accordingly the chief aims.

In the Sophomore year the scope of instruction is widened by giving more prominence than previously to the subject-matter of what is read, and to the historic place of the writer and his work in the literature.

In the Junior year private reading is prescribed, and examinations are held upon it; in the class room, the literary and historico-literary side of the work is further emphasized; and an endeavor is made to awaken interest in the linguistic side by encouraging the practice of independent observation of linguistic facts, and their effect upon literary expression.

In the Senior year the aims and methods are the same as in the Junior year, except that they are extended and developed.

Professor LAMBERTON:

6. Aeschylus, *Agamemnon* and *Eumenides;* Demosthenes, *Philippics.* Private reading: Plutarch, *Themistocles;* Sophocles, *Philoctetes.* Two hours.

5. Euripides, *Ion.* Thucydides. Private reading: Plutarch, *Nicias;* Sophocles, *Antigone.* Two hours.

8. Greek Life. One hour.

8*a*. Greek Literature. One hour.

Courses 8 and 8*a* are given in alternate years. 8 is given in 1898–99.

A. Demosthenes, *Oration on the Crown.* One hour.

Course A is voluntary work in Junior year, not counting for a degree.

Associate Professor GUDEMAN:

4. Aristophanes, *Frogs* (*First Term*); Aristotle, *Poetics* (*Second Term*). One hour.

7. Plutarch, *Demosthenes* and *Cicero* (*First Term*). Theocritus (*Second Term*). Two hours.

In 1898–99, courses 6, 7 and 8 form the work of the Senior Class in the Greek-Latin group; and courses 3, 4 and 8 form the work of the Junior Class in the same group. Any of these courses are open as free electives to students properly qualified.

Dr. BATES:

2. Plato, *Laches;* Euripides, *Iphigenia among the Taurians;* Aristophanes, *Acharnians;* Andocides, *de Mysteriis.* Translation at sight. Greek Composition. Three hours. Prescribed for Sophomores taking the Greek-Latin course.

1. Lysias, *Selected Orations;* Pluto, *Apology* and *Crito.* Greek Composition. Three hours. Prescribed for Freshmen taking the Greek-Latin course.

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10. Greek Archæology. Lectures and conferences. Architecture, sculpture, terra-cotta, vase-painting. The history of Greek Archæology. One hour. Elective for Juniors and Seniors in Arts and Science.

D. Sight Reading. One hour.

Course D is voluntary work in Sophomore year, not counting for a degree.

INTRODUCTION TO THE NEW TESTAMENT.

Dr. SAILER:

This course is intended to prepare students for an intelligent study of the New Testament, and covers two years. During the first year the four Gospels are studied in connection with the history of the times in which they were written. The work of the second year is concerned with the remaining books of the New Testament. This includes an analysis of each book, and an account of its relation to the other books and to the times in which it was written. The course consists of lectures and assigned readings. In 1898-99 the second part of the course is given. Elective for Seniors and Juniors in Arts and Science. Two hours.

LATIN.

Professor JACKSON:

3. Horace, *Satires*. Tacitus, *Annals*. Prescribed for Sophomores in Arts and Science taking the Greek-Latin, Latin-German or Latin-French courses. One hour.
5. Selections from Juvenal. Cicero, *Tusculanæ*. Horace, *Odes*. Open only to those who have taken Course 3. Three hours.
6. Cicero, *Oration for Cluentius*. Juvenal, *Sat. VIII*, Horace, *Ars Poetica*. Three hours.

Associate Professor GUDEMAN:

9. Plautus, *Mostellaria* and Terence, *Adelphi* (*First Term*). Petronius, *Cena Trimalchionis* and Seneca, *Apocolocyntosis* (*Second Term*). Private reading; Middleton and Mills' *Companion to Latin Authors*. One hour.
11. Tacitus, *Dialogus* and *Agricola* (*First Term*); Lucretius (*Second Term*). Private reading: Tacitus, *Germania*. Two hours.

B. Selections from Seneca Rhetor, Quintilian and Pliny the Younger. One hour.

Course B is voluntary work in Junior year, not counting for a degree.

Courses 5 and 9 form the work in Latin of Juniors in Arts and Science, who elect the Greek-Latin, Latin-German or Latin-French groups. Courses 6 and 11 form the work in Latin of Seniors in Arts and Science in the same groups.

Professor GIBBONS:

2. (a) Livy, Books XXI and XXII. Expressive reading of the Latin. Derivation of words. Syntax with Latin Prose Composition. (b) Horace, *Odes*. Metres and poetic usage. Prescribed for Freshmen in Arts and Science in the Greek-Latin, Latin-German and Latin-French courses. Three hours.

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4. (a) Horace, *Odes*. Poetic translations. Mythology. (b) Cicero, *De Senectute* and *De Amicitia*. Latin Prose Composition. Lectures on Roman History and Antiquities. Mackail's *Roman Literature*. Prescribed for Sophomores in Arts and Science in the Greek-Latin, Latin-German and Latin-French courses. Two hours.

7. Vergil. Expressive reading of Latin verse. Metrical translations. Mythology in literature and art. Elective for Juniors and Seniors in Arts and Science. Two hours. (Given in alternate years. Omitted in 1899-1900.)

C. Sight Reading: Livy and Cicero. One hour per week during one term each of Freshman and Sophomore years.

In course C the work is voluntary, not counting for a degree, and prepares for the prize examination in sight reading.

ENGLISH.

Three objects are contemplated in the arrangement of the undergraduate courses in English: (1) proficiency in the writing of English, with some practice in speaking and debate; (2) a general acquaintance with English Literature, and (3) a study of the elements of English Philology.

A. English Literature.

English composition is prescribed for all students in the College during Freshman year, and in Sophomore year for all students except those in Finance and Economy. It is further required of all Juniors, except those in technical courses; while continued exercises up to the time of graduation are rendered possible for certain students by the electives of Senior year. It is the general aim of the courses in composition to train the student to express himself in good English, and to cultivate in him readiness and accuracy of perception in matters of thought and style. A course, which includes the preparation and delivery of original speeches and exercise in debates, is offered as an elective to Juniors and Seniors.

Assistant Professor PENNIMAN, Dr. CHILD, Mr. QUINN and Mr. WEYGANDT; Mr. CROWNE and Mr. HANEY:

1. COMPOSITION.—This course comprehends a study of the theory of rhetoric, and the writing of themes based on a reading of American prose authors (Irving, Hawthorne, Poe, Thoreau). Genung's *Practical Elements of Rhetoric* is used as a text-book. Prescribed for all Freshmen. Two hours.

Dr. CHILD, Mr. QUINN, and Mr. WEYGANDT:

2. COMPOSITION.—This course demands the preparation of one composition a week on subjects elected to afford exercise in the various modes of rhetorical expression. Genung's *Handbook of Rhetorical Analysis* is the text-book used. Prescribed for all Sophomores, except those in Finance and Economy, students in Engineering taking the year's work in sessions of two hours per week during the second term. One hour.

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Dr. CHILD and Mr. QUINN:

3. COMPOSITION.—Weekly exercises in popular and literary subjects assigned by the instructor, with special reference to the gathering and ordering of material. Course 3 is prescribed for Juniors in Arts and Science, Science and Technology and in Chemistry. One hour.

Dr. ALDEN:

5. PRINCIPLES OF ENGLISH VERSIFICATION.—Lectures on Poetics. The nature of English Verse, from an æsthetic as well as a structural point of view, with practical exercises in the scanning of English metres. Gummere's *Handbook of Poetics* and Corson's *Primer of English Verse.* Two hours. (*First Term.*)

Course 5 with English Literature 16, for which see below, is prescribed for Juniors in Arts and Science in the English-German, English-French and History-English groups.

10. PUBLIC SPEAKING.—Analysis of selections; descriptive and narrative readings; the principles of oral expression; articulation, enunciation, and cultivation of the voice for purity, strength and variety. Prescribed for Freshmen in Arts and Science, in Science and Technology, and in Finance and Economy. One hour. (Omitted in 1898-99.)

13. FORENSICS AND DEBATING.—This course will consist of lectures on the art of debate, and of oral debates participated in and criticised by students taking the course.

Course 13 is offered as a Free Elective to all Juniors and Seniors. Juniors may take this work in lieu of the prescribed course in Composition for Junior year.

B. English Literature.

The study of English literature begins with Sophomore year, which is devoted to the reading of works of the greater nineteenth century novelists and essayists. The history of English literature is pursued as a required study throughout the Junior year, and the various electives of that year and of Senior year treat the subject afresh and with greater concentration from an organic and æsthetic point of view. Required and additional voluntary reading keep the student in touch with the works forming the subjects of the lectures.

English Literature is prescribed as a study for all Sophomores, and for Juniors in Arts and Science. In addition to the prescribed work, courses are offered to the students of the upper classes as free electives and as parts of the German-English, History-English and French-English groups mentioned above, and two seminaries—or classes for study and discussion—are held for students, candidates for honors in English.

Assistant Professor PENNIMAN, Mr. QUINN and Mr. WEYGANDT:

2. MODERN NOVELISTS.—Lectures on the development of the novel through Scott, Dickens, Thackeray, George Eliot, Hawthorne

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and others. Recitations and the frequent writing of brief papers on subjects involving collateral readings in the works of the authors discussed. Prescribed for all Sophomores. Two hours (*First Term*).

Professor SCHELLING and Mr. WEYGANDT:

1. MODERN ESSAYISTS.—This course consists of lectures on the nature and growth of the familiar and literary essay; in recitations on the subjects of the lectures; and in the preparation of brief papers. Prescribed for all Sophomores except those in Civil and Mechanical Engineering. Two hours (*Second Term*).

Professor SCHELLING:

3. PERIOD OF FRENCH INFLUENCE.—Lectures on the History of English Literature from Waller to Cowper. Prescribed for Juniors in Arts and Science, and in Chemistry; and elective with History and Logic and Ethics for Juniors in Science and Technology. Two hours (*First Term*).

7. THE AGE OF ELIZABETH.—Lectures on the History of English Literature from the Revival of Learning to Milton, including the drama. Saintsbury's *Elizabethan Literature* is recommended for reference. Prescribed for Juniors in Arts and Science and in Chemistry; and elective with History and Logic and Ethics for Juniors in Science and Technology. Two hours (*First Term*).

Dr. CHILD:

16. LITERARY STUDY OF CHAUCER.—This course includes the reading and critical study of selected works, with lectures upon the facts of Chaucer's life; his relation to his time; the sources of his poetry and kindred topics. This course forms with course English 5 (in versification) the non-philological part of the group electives in History-English, German-English and French-English for Junior year. Two hours (*Second Term*).

Professor SCHELLING:

4. SEMINARY.—Discussions and criticism of papers prepared by the students on subjects selected from the works of authors treated in Courses 3 and 7. Open to Juniors, candidates for honors in English, and as a voluntary to any student of the class in good standing. Two hours. Every other week throughout the year.

14. ELIZABETHAN DRAMATISTS.—Readings and critical study of plays of Marlowe, Shakespeare, Jonson, Beaumont and Fletcher, Webster, and Shirley. Preparation of papers involving the principles of dramatic construction, comparison and origins. Two hours (*First Term*).

8. MODERN POETS.—Lectures upon the Romantic Revival, the Poetry of Revolt, Wordsworth, Keats, Tennyson, Browning, Mr. Swinburne and Walt Whitman. Recitations and examinations upon collateral reading. Two hours (*Second Term*).

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9. SEMINARY.—Discussion and criticism of papers prepared by the students on subjects selected from the work of authors treated in Courses 14, 8 and 17. Open to Seniors, candidates for honors in English, and as a voluntary to any member of the Senior Class in good standing.

Mr. WEYGANDT:

17. CONTEMPORARY POETRY.—The revival of English Poetry since 1888. The School of Virility, the Symbolists, the Celtic Renaissance, Belated Victorians. Mr. Henley, Mr. Kipling, Mr. Davidson, Mr. Yeats, Miss Macleod, Mr. Sharp, Mr. Symons, Mr. Watson, Mr. Thompson, Mr. Roberts and Mr. Carman. LeGallienne's *Retrospective Reviews* is recommended for reference. One hour (*Second Term*).

Courses 14, 8 and 17 are prescribed for Seniors in Arts and Science in the German-English, French-English and History-English groups. Any one of these courses may be taken as a free elective.

C. English Language (including English Philology).

Professor EASTON, Dr. CHILD and Mr. QUINN.

1. ENGLISH LANGUAGE AND ANALYSIS.—It is the purpose of this course to prepare for the rhetorical and literary courses which accompany and follow it, and to increase the efficiency of the instruction in foreign languages. The history of the English language is studied in outline with reference to the sources of its vocabulary. Prescribed for all Freshmen, except those in Finance and Economy. Lounsbury's *English Language*. One hour.

Professor EASTON:

2. ANGLO-SAXON.—Sweet's *Anglo-Saxon Primer*. Sweet's *Anglo-Saxon Reader*. Lectures on phonetics, with some comparative study of Anglo-Saxon, Middle English and Modern English forms and orthography. Two hours.

5. ENGLISH PHILOLOGY.—Major course. Morris' *Specimens of Early English*. Readings in Chaucer. Open as a free elective to those who have taken Course 2. Two hours.

6. ELIZABETHAN GRAMMAR.—A philological and grammatical study of plays of Shakespeare. Abbott's *Shakespearean Grammar*. One hour (*First Term*).

Course 2 forms a part of the work for Juniors in the German-English, History-English, and French-English groups. Courses 6 and 7 form a part of the work for Seniors in the same groups.

FRENCH.

Professor RENNERT:

1. Old French. Toynbee, *Specimens of Old French* (Macmillan & Co.). Brachet-Toynbee, *Historical French Grammar*. In the second term some Anglo-Norman text will be read. History of French Literature; Gaston Paris, *Histoire de la Littérature francaise au Moyen Age*. Four hours.

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2. Classical Drama. Corneille, *Le Cid;* Racine, *Andromaque;* Molière, *Le Medecin Malgre Lui, Le Bourgeois Gentilhomme,* The language of the 16th Century; Darmesteter and Hatzfeld, *Le XVIe Siècle en France.* Introduction to Historical Grammar: Darmesteter, *Grammaire Historique.* History of French Literature: Lanson, *Histoire de la Littérature française* (Hachette, 1897). Three hours.

3. Classical Drama. Selected plays of Molière, Racine and Corneille will be read, with exercises on the Grammar. Elective with German for Juniors in Science and Technology, and in Chemistry. Two hours.

Professor RENNERT and Dr. MOLENAER:

4. De Vigny, *Cinq-Mars;* Zola, *La Débacle.* A number of French plays will be read at sight. Exercises in Prose Composition. Elective with German for Sophomores in Science and Technology, Chemistry, and in Architecture. Three hours.

4a. Gautier, *Voyage en Espagne;* Selections from Victor Hugo. Scientific and technical reading. Elective with German for Sophomores in Science and Technology, Chemistry and Architecture. This course, with prose composition, as in Course 4, is elective with German for Sophomores in Civil, Mechanical, Electrical and Chemical Engineering. Two hours.

5. About, *Le Roi des Montagnes;* Dumas, *Les Trois Mousquetaires* (Macmillan & Co.). Reading at sight. Merrimée, *Chronique de Charles IX.;* Hugo, *La Chute.* Exercises in Prose Composition, and review of Grammar. Elective with German for Freshmen in all Technical courses. Three hours.

ITALIAN.

Professor RENNERT:

1. Dante, Selections from *Il Purgatorio.* Elective for Seniors in Arts and Science. Two hours.

2. Elementary Grammar. Pellico, *Le Mie Prigioni.* Carcano, *Memorie d'un fanciullo; Il cappellano della Rovella.* Exercises in Composition. Elective for Juniors and Seniors in Arts and Science. Two hours.

SPANISH.

Professor RENNERT:

1. Knapp's *Spanish Grammar and Spanish Readings.* Lope de Vega, *Sin Secreto no ay Amor.* Elective for Juniors and Seniors in Arts and Science. Two hours (*Second Term*).

GERMAN.

Professor LEARNED, Dr. SHUMWAY and Mr. WESSELHOEFT:

5. Whitney's *German Grammar.* Prose Composition. German Prose: Freytag's *Dr. Luther,* Dahn's *Erinnerungen.* History of German Literature of the Classical Period. Classics: Goethe's *Iphigenie,* Schiller's *Wallenstein.* Collateral reading: Selected letters from *Briefwechsel zwischen Schiller und Goethe.* Four hours.

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6. Wilmann's *German Grammar* and Brandt's *German Grammar:* the second part of each. Original German Essays. Classical Prose: Lessing's *Laocoön,* Goethe's *Dichtung und Wahrheit.* Classical Drama: Lessing's *Nathan der Weise,* Goethe's *Faust.* History of German Literature since Luther (in German). Collateral reading: Poems of the period since Luther. Five hours.

Course 6 forms the work of Seniors in Arts and Science in the Latin-German, English-German and German-French groups; Course 5 forms the work of Juniors in the same groups.

Professor LEARNED:

7. Nineteenth Century German Lyrics. In this course, representative German Lyrics of the present century will be read, and the various schools of poetry will be discussed. The course will be distinctly literary, and adapted to students of English or French, as well as those with German in their regular course. Elective for Juniors and Seniors. Two hours.

Dr. SHUMWAY and Mr. WESSELHOEFT:

1. Joyne's-Meissner's *German Grammar.* Prose Composition. Riehl's *Burg Neideck,* K. F. Meyer's *Gustav Adolfs Page,* Heine's *Harzreise,* Lessing's *Minna von Barnhelm.* Three hours. Prescribed for Freshmen in Arts and Science in the Latin-German and German-French courses, for Freshmen in Finance and Economy, and for Freshmen and first-year specials in Biology: elective with French for Freshmen in the other courses.
2. Thomas' *German Grammar.* Prose Composition. Freytag's *Aus dem Staat Friedrichs des Grossen;* Goethe's *Egmont;* Schiller's *Wilhelm Tell.* Collateral reading: Schiller's *Historische Skizzen.* Three hours. Prescribed for Sophomores in Arts and Science in the Latin-German and German-French courses, and for Sophomores in Finance and Economy; and elective with French for Sophomores in Science and Technology, Chemistry and Architecture.
3. Whitney's *German Grammar* (brief course) and *German Reader.* Gore's *Science Reader.* Prose Composition. Three hours. Prescribed for Sophomores in Biology, and elective with French for Sophomores in the four-year Engineering Courses.

Mr. WESSELHOEFT:

3*a*. The same as 3, without the Grammar and Prose Composition. Two hours. Elective with French for Sophomores in Science and Technology, Chemistry and Architecture.

4. Whitney's *German Grammar.* Prose Composition (advanced). Helmholz's *Ueber Goethe's Naturwissenschaftliche Arbeiten;* Virchow's *Nahrungs- und Genussmittel.* Cohn's *Ueber Bakterien.* Two hours. Elective with French for Juniors in Science and Technology, and Chemistry.

Mr. PRETTYMAN:

8. Sight Reading. German Historical Prose. Elective. Two hours.

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PHILOSOPHY

*Professor FULLERTON:

Assistant Professor NEWBOLD:

2. ETHICS.—Lectures and recitations. The course is critical and constructive. It is prescribed for Juniors in Arts and Science, in Finance and Economy, and in the four-year course in Chemistry; and is elective for Juniors in Science and Technology, excepting those in Chemistry. Two hours (*First Term*).
3. HISTORY OF PHILOSOPHY.—Lectures, with use of Weber's *History of Philosophy* (translated by F. Thilly). Prescribed for Seniors in Arts and Science in the Philosophy-History group. Two hours (*First Term*).
4. THE DEVELOPMENT OF IDEALISM.—Lectures and recitations, Weber's *History of Philosophy*, with readings in Locke, Berkeley and Hume. Prescribed for Seniors in Arts and Science in the Philosophy-History group, and elective for other Seniors in Arts and Science. Two hours (*Second Term*).
5. IDEATION.—Lectures. This course is complementary to 3 and 4, and is designed to present the phenomena and laws of the more complex mental processes from the introspective point of view. Prescribed for Seniors in Arts and Science in the Philosophy-History group. Students may not take this course as an elective unless they have taken 1 and 2. Two hours.

Dr. SINGER:

1. LOGIC.—Lectures and recitations, covering in outline Inductive and Deductive Logic. Prescribed for Juniors in Arts and Science and in Finance and Economy; and elective for Juniors in Science and Technology, excepting those in Chemistry. Two hours (*Second Term*).
6. PHILOSOPHY OF SCIENCE.—An examination of the fundamental concepts of Science. Prescribed for Juniors in Arts and Science in the Philosophy-History group. Two hours.

PSYCHOLOGY.

Assistant Professor WITMER:

1. PHYSIOLOGICAL PSYCHOLOGY.—The connection of mental with physiological processes. A study of the reacting organism in relation to its environment. Dissection of the human and of ox brains. Cerebral localization. The structure and the function of sense-organs and muscles in the production of bodily movements. Lectures and laboratory work. Prescribed for Juniors in Arts and Science in the Philosophy-History group, and for Juniors in Biology. Given in the Psychological Laboratory, Biological Hall. Two hours (*First Term*).
2. SENSATION AND PERCEPTION.—Lectures and laboratory work. Prescribed for Juniors in Arts and Science in the Philosophy-History group, and for Juniors in Biology. Given in the Psychological Laboratory, Biological Hall. Two hours (*Second Term*).

* Absent on leave.

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3. COMPLEX MENTAL PROCESSES.—The emotions, memory, association, attention, apperception and volition. Lectures and laboratory work. Prescribed for Seniors in Arts and Science in the Philosophy-History group, and for Seniors in Biology. Given in the Psychological Laboratory, Biological Hall. Two hours (*First Term*).

4. EXPERIMENTAL PSYCHOLOGY.—The methods and results of modern experimentation upon the more complex mental processes. Lecture and laboratory work, with consultation of original authorities. Prescribed for Seniors in Arts and Science in the Philosophy-History group, and for Seniors in Biology. Given in the Psychological Laboratory, Biological Hall. Two hours (*Second Term*).

PEDAGOGY.

Professor BRUMBAUGH:

1. EDUCATIONAL PRINCIPLES.—A critical study of educational principles; their origin and comparative value; the present condition of educational systems in England, Germany, France and the United States; and a practical investigation of typical schools. Elective for Juniors and Seniors. Two hours.

AMERICAN HISTORY.

Professor McMASTER:

1. POLITICAL HISTORY OF THE UNITED STATES (1765-1830).—This course is conducted during the second term of each collegiate year, and comprises: (*a*) the lecture course; (*b*) the supplementary reading with synopsis of book, speeches and documents; (*c*) the historical geography of the United States, illustrated by a set of maps; and (*d*) the essays. Prescribed for Sophomores in Finance and Economy. Four hours (*Second Term*).

1*a*. POLITICAL HISTORY OF THE UNITED STATES (1830-1869).—A continuation of Course 1, and conducted on the same general plan. Prescribed for Juniors in Finance and Economy. Four hours (*First Term*).

3. UNITED STATES IN THE 19TH CENTURY.—*First Term*, The Period from 1789-1825; *Second Term*, The Period from 1825-1861. Political history is partly considered, but chiefly the economic, financial and industrial history. Prescribed for Juniors in Arts and Science in the History-English, Philosophy-History and Economics-History groups. Two hours.

4. HISTORY OF OUR OWN TIME.—Covering the period from the opening of the Civil War to March 4, 1896. Prescribed for Seniors in Arts and Science in the History-English, Philosophy-History and Economics-History groups. One hour.

6. POLITICAL HISTORY OF THE UNITED STATES SINCE THE CIVIL WAR.—Accompanied by required papers. Required reading, reviews, the legislative action of Congress since 1861. Voluntary for Seniors in Finance and Economy. Two hours. (Omitted in 1898-99.)

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Dr. AMES:

*7. AMERICAN COLONIAL HISTORY, POLITICAL AND INSTITUTIONAL.—Special attention is given to the constitutional and institutional development of the English colonies, and their growth toward independence and union. Lectures, collateral readings, map work and written exercises. An outline is prepared for the class. Prescribed for Freshmen in Arts and Science. Three hours (*First Term*).

*8. PRINCIPLES OF GOVERNMENT IN THE UNITED STATES, NATIONAL AND STATE.—Study of government in the United States, National and State, and the American Party system. Origin, structure and administration. Relation between the Federal and State Governments. Methods the same as in course 7. Prescribed for Freshmen in Arts and Science. Three hours (*Second Term*).

9. CONSTITUTIONAL HISTORY OF THE UNITED STATES TO 1815: THE FORMATIVE PERIOD.—Preliminary survey of the structure of colonial governments and the development during the colonial and revolutionary periods. Formation and dissolution of the Confederation; "the making" of the Federal Constitution; the growth of Nationality, and the contest between Nationality and State Sovereignty; questions of the interpretation of the Constitution in regard to the powers of the Federal Government and the reserved powers of the States; remedy for usurpation; the first twelve amendments and unsuccessful amendments. Lectures, special reports, required readings. Prescribed for Seniors in Arts and Science in the History-English, Philosophy-History and History-Economic groups. Two hours (*First Term*).

10. CONSTITUTIONAL HISTORY OF THE UNITED STATES SINCE 1815.—The Nationalization of Democracy, and the conflict between Nationality and Slavery, 1815-1860; the nationalizing results of the war of 1812; influence of the Federal Judiciary; broad versus strict construction; nullification, the theory and practice; constitutional aspects of the slavery struggle; proposed amendments to the Constitution; evolution of State constitutions, the triumph of Democracy. The Civil War and Reconstruction, the triumph of Nationality, 1860-1876; the Constitution during the Civil War; theories and actual process of "reconstruction;" the thirteenth, fourteenth and fifteenth amendments and their interpretation; other proposed amendments; constitutional results of the war. Methods as in course 9. Prescribed for Seniors in Arts and Science in the History-English, Philosophy-History and History-Economics groups. Two hours (*Second Term*).

11. AMERICAN INSTITUTIONAL AND CONSTITUTIONAL HISTORY DURING THE COLONIAL AND REVOLUTIONARY PERIODS.—The relation of American to European institutions; the origin and development of the various types of colonial institutions and local or-

* Freshmen who passed American History at entrance take European History 1 during the year. Those who did not pass American History at entrance, take American History 7 and 8 during the year.

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ganization. The methods as in course 9. Elective for Juniors and Seniors in Arts and Science. Two hours (*First Term*).

12. HISTORY OF THE FOREIGN RELATIONS OF THE UNITED STATES.—A study of the chief questions connected with our foreign relations, from the appointment of the Committee on Foreign Relations in the Continental Congress to the present time. Elective for Juniors and Seniors in Arts and Science. Two hours (*Second Term*).

EUROPEAN HISTORY.

Assistant Professor CHEYNEY:

2. ENGLISH CONSTITUTIONAL HISTORY.—A study of the political condition of England at the close of the Saxon Period, and of its constitutional development down to the close of the seventeenth century. Lectures, required readings and analysis of documents. Prescribed for Juniors in Finance and Economy. Two hours.

3. SOCIAL HISTORY OF ENGLAND.—A study of the organization of society in early England, and the economic changes and social development since. Lectures and required readings. Prescribed for Seniors in Arts and Science in the History-English, Philosophy-History and Economics-History groups. Two hours.

4. GENERAL HISTORY.—A brief indication of the significance of the most influential movements in the history of Europe, from the beginning of the fourteenth century to the completion of German and Italian unity in 1871: a continuation of 11. Lectures. One hour (*Second Term*).

Assistant Professor MUNRO:

8. OUTLINES OF EUROPEAN HISTORY.—This course begins with the Roman Empire A. D. 300 and traces the course of events for Western Europe to the close of the Middle Ages. Text-book, required reading, lectures, oral and written recitations. This course is followed by course 12, and is prescribed for Freshmen who do not take American History. Three hours (*First Term*).

9. ROMAN HISTORY.—History of the Empire to 476 A. D. Political history, unification of the Roman world, economic and social conditions, spread and influence of Christianity, and causes of the disintegration of the Empire. Text-book, lectures, required readings, oral and written recitations. Prescribed for Sophomores in Finance and Economy. Four hours (*First Term*).

10. MEDIÆVAL HISTORY.—In the first term the dissolution of the Roman Empire; the migrations of the German nations; the action of the Roman civilization upon the barbarians; the influence of the Church and the formation of the Mediæval Empire. Second term; the Holy Roman Empire to the Great Interregnum, and the Crusades. Lectures and required reading. Prescribed for Juniors in Arts and Science in the History-English, Philosophy-History and Economics-History groups. Two hours.

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11. GENERAL HISTORY.—A brief sketch of the nations and forces which have been influential in the history of the world, from the beginnings of civilization in Egypt and Chaldea, to the close of the great crusading movement in the 13th century. This course is followed by 4, and can be taken only by Seniors in the History groups, and by such others as may be admitted by the professor in charge. Lectures. One hour (*First Term*).

Dr. WHITCOMB:

5. THE HISTORY OF EUROPE FROM 1789 TO 1815.—The leading events of the French Revolution will be carefully considered in their causal relations, and as illustrating the events of modern political thought. In the study of the Napoleonic period, stress will be laid upon the diplomatic history and the development of self-consciousness among the European nations. Elective for Sophomores in Arts and Science and in Science and Technology. Three hours (*First Term*).

6. RECENT EUROPEAN HISTORY SINCE 1815.—The successive changes in France, and the unification of Germany and of Italy will be considered, some attention being devoted to the Eastern Question. Elective for Sophomores in Arts and Science and in Science and Technology. Three hours (*Second Term*).

7. THE RENAISSANCE AND REFORMATION.—The beginnings of the modern spirit will be traced in Italy and Germany, illustrated by the progress of Literature and Art during the 14th and 15th centuries. The history of the Papacy from the opening of the Conciliar period will serve at once to indicate the earliest stages of the Reformation, and the progress of the Renaissance. The history of the period of Charles V., of the Lutheran Reformation and of the Wars of Religion in France, will occupy the second term. Prescribed for Seniors in Finance and Economy. Two hours.

12. OUTLINE OF EUROPEAN HISTORY.—The Renaissance, the Reformation, the Religious Wars, the career of Frederick the Great, and the development of France in the 18th century, to the meeting of the States General in 1789. Continuation of Course 8. Three hours (*Second Term*).

PUBLIC LAW AND POLITICS.

Assistant Professor ADAMS:

3. POLITICS.—A study of the political organization of the United States, England, France and Canada. The nature and scope of the executive, legislative and judicial organs are compared. Lecture course, with assigned readings. Prescribed for Juniors in Finance and Economy. Two hours.

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12. HISTORY OF LAW AND LEGAL CONCEPTS.—The study of the development of the law of private property, and the mutual rights and obligations of private persons. A non-technical discussion

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of private law with comparisons of the Common and Roman Law. Prescribed for Seniors in Finance and Economy. Four hours (*Second Term*).

Assistant Professor ROWE:

13. LOCAL AND MUNICIPAL INSTITUTIONS.—A comparative study of city government in Europe and the United States. The course is divided into two parts. *Part I.* The problems of city life in ancient and mediæval times. Rise of the modern city; changes in political and social conditions accompanying its growth. Influence of these changes on the relation of the city to the State, on municipal organization and functions. *Part II.* Municipal government in the United States as compared with England, France and Germany. Tendencies in the organization of city government. Relation of the municipality to quasi-public works and to social problems. The social activities of the larger cities. Required readings in Shaw's *Municipal Government in Great Britain,* Goodnow's *Municipal Problems and Economy.* Four hours (*First Term*).

15. MODERN LEGISLATIVE PROBLEMS.—*Part I.* Relation of custom to legislation in ancient and modern times. Extension of the power of legislative bodies. Their relation to the other organs of government. Analysis of the forces determining legislation. *Part II.* The limits of legislative power. Its relation to civil and political rights. Protection to such rights in the United States as compared with England, Germany and France. Readings in Lowell's *Government and Parties in Continental Europe,* Bryce's *American Commonwealth,* Vol. II, and Wilson's *Congressional Government.* Prescribed for Juniors in Finance and Economy. Four hours (*Second Term*).

16. PRINCIPLES OF GOVERNMENT AND STATE INTERFERENCE.—Comparative study of the nature and extent of powers of government. Relation of the State to industrial actions. Resulting relation between the individual and the State. Citizenship in the United States as compared with England, Germany and France. The individualistic and socialistic movements of the present century. Prescribed for Seniors in Arts and Science in the Economics-History group. Three hours (*First Term*).

18. PRINCIPLES OF INTERNATIONAL LAW.—Nature and sources of international law. The equality of states in law and fact. The doctrine of intervention. Rules of war and peace as between states and individuals. The law of neutrality with special reference to blockade and contraband. The doctrines of the American courts will receive special attention. Snow's *Cases on International Law.* Elective for Seniors in Arts and Science and in Finance and Economy. Two hours (*Second Term*).

Assistant Professor ADAMS:

19. PUBLIC FINANCE.—A study of public expenditures, the sources of state income, and the development, classification, incidence

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and effects of the principal taxes will be followed by a discussion of the more important taxes of Pennsylvania. Lectures, reports and assigned readings in Adams' *Science of Finance*. Prescribed for Seniors in Arts and Science in the Economics-History group. Two hours (*First Term*).

17. REPRESENTATIVE GOVERNMENT.—This course treats chiefly of representative government in the United States. The early forms of political representation in the colonies are described, and their influence upon the system prevailing at the present time is discussed. Prescribed for Seniors in Arts and Science in the Economics-History group. Two hours (*Second Term*).

Dr. YOUNG:

1. AMERICAN CONSTITUTIONAL LAW.—A study of the theory and practical workings of the Federal Constitution. Recent changes and present tendencies. Required readings, lectures and leading cases. Prescribed for Sophomores in Finance and Economy. Two hours (*First Term*).

4. EUROPEAN CONSTITUTIONAL LAW.—The Federal Constitutions of Switzerland and Germany. Comparisons with the American Constitution. Growth of the Federal form. Lectures and required readings. Prescribed for Sophomores in Finance and Economy. Two hours (*Second Term*).

5. PUBLIC ADMINISTRATION.—A comparative study of American and European administration. Methods of local and central organization; peculiar characteristics of the various systems. Influence of economic and social changes on administrative development. Lectures, readings and essays. Prescribed for Juniors in Finance and Economy. Two hours.

6. AMERICAN POLITICAL INSTITUTIONS.—A study of our state and national systems. The organization and powers of the legislative, executive and judicial branches of the Federal government, followed by a description of the characteristic features of our state institutions. Prescribed for Juniors in Arts and Science in Economics-History group. Two hours (*First Term*).

6*a*. EUROPEAN CONSTITUTIONS.—A comparison of English and Swiss political institutions with those of the United States. The peculiarities of parliamentary government in England and of democracy in Switzerland are contrasted with corresponding features of the American system. Prescribed for Juniors in Arts and Science in Economics-History group. Two hours (*Second Term*).

8. LEGISLATIVE PROCEDURE AND ORGANIZATION.—Wharton School Congress. Students are familiarized with the principles and procedure of congressional legislation. Assigned reports on questions of finance, taxation and kindred topics. Committee work and debate. Prescribed for Sophomores in Finance and Economy. Two hours (*First Term*).

8*a*. LEGISLATIVE AND EXECUTIVE DOCUMENTS.—The design of this course is to give familiarity with the use of the more important

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national and State documents in America. Abstracts of important laws, treaties, resolutions, debates and executive documents are prepared and discussed. Prescribed for Freshmen in Finance and Economy. One hour.

BUSINESS LAW AND PRACTICE.

Associate Professor FALKNER:

2. MERCANTILE LAW.—Lectures prescribed for Sophomores in Finance and Economy. Four hours (*First Half of First Term*).

Professor J. F. JOHNSON:

5. BUSINESS PRACTICE AND BANKING.—Lectures on the methods and principles of banking; the national bank note system compared with the issues of Canadian, French, German and English banks; the world's credit machinery; the causes of gold movements; panics; the influence of speculation upon prices, etc. Dunbar's *History and Theory of Banking;* Bagehot's *Lombard Street;* Johnson's *The Principles of Money.* Prescribed for Juniors in Finance and Economy. Four hours (*First Term*).

3. ACCOUNTING.—The organization and accounts of corporations and trusts; stock and produce exchanges; investments and the managements of estates. *The Financial Review of the Commercial and Financial Chronicle.* Prescribed for Sophomores in Finance and Economy. Two hours (*Second Term*).

Assistant Professor ADAMS:

1. PRINCIPLES AND METHODS OF ACCOUNTING.—Prescribed for Freshmen in Finance and Economy. Three hours.

Mr. WINTERSTEEN:

4. BUSINESS LAW AND CONTRACTS.—Prescribed for Post-Seniors in Civil and Mechanical Engineering, and for Seniors in the four-year Engineering courses and in Chemistry. One hour.

ECONOMICS AND SOCIAL SCIENCE.

A. Political Economy.

Professor PATTEN:

5 and 6. ADVANCED POLITICAL ECONOMY.—This course is designed primarily as an introduction to social philosophy. Mill's *Political Economy* is used as a text-book. Each of the leading doctrines is traced through the various phases of its development until it assumes its final form in the writings of Mill. Prescribed for Seniors in Finance and Economy, and elective for Seniors in Arts and Science who have taken course 17 or an equivalent. Two hours.

1. POLITICAL ECONOMY.—Walker's *Political Economy* and Adam Smith's *Wealth of Nations.* Prescribed for Sophomores in Finance and Economy. Two hours.

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Assistant Professor SEAGER:

17. POLITICAL ECONOMY.—A general course designed for beginners in the subject. During the second term special attention will be given to the practical economic problems of the day. Lectures and required reading in selected treatises. Prescribed for Seniors in Science and Technology, and in the four-year courses in Chemistry and Civil Engineering; and for Juniors in Arts and Science in the Economics-History group. Two hours.

8. ECONOMIC HISTORY.—Industrial changes in England in the 16th, 17th and 18th centuries. Gibbon's *Industrial History of England.* Lectures and readings. Prescribed for Juniors in Finance and Economy. Two hours.

B. Applied Economics.

Associate Professor FALKNER:

9. STATISTICS.—Lectures and investigation. A study of population in its social and economic aspects in Europe and America. Prescribed for Juniors in Finance and Economy. Four hours (*Second Term*).

2. THEORY AND HISTORY OF MONEY.—Walker's *Political Economy.* Lectures on the monetary history and policy of the United States. Prescribed for Sophomores in Finance and Economy. Four hours (*Second Half of First Term*).

3. MONETARY HISTORY.—The history of the money systems of the United States, Great Britain, France and Germany. Elective for Seniors in Finance and Economy. Two hours (*First Term*).

Professor J. F. JOHNSON:

18. ECONOMIC LITERATURE.—A reading course preparatory to the study of Economic Science. Prescribed for Freshmen in Finance and Economy. Two hours.

Assistant Professor ADAMS:

7. PUBLIC FINANCE.—A lecture course on the classification, incidence and effects of the various public revenues. This is followed by a study of the tax system of Pennsylvania, supplemented by assigned readings in Bastable's *Public Finance* and Seligman's *Essays on Taxation.* Prescribed for Seniors in Finance and Economy. Two hours.

Assistant Professor SEAGER:

16. PRACTICAL ECONOMIC PROBLEMS.—A study of elementary principles of Political Economy. The labor movement, tariff legislation, wages, protection and free-trade. Cannan's *Political Economy,* Wright's *Industrial Evolution of the United States,* Taussig's *Tariff History of the United States.* Lectures, essays and readings. Prescribed for Freshmen in Finance and Economy. Two hours.

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Assistant Professor E. R. JOHNSON:

11. COMMERCE.—A study of the political and economic forces that have controlled the world's commerce since the fifteenth century. The last third of the course is devoted to American commerce. Lectures, reports, and readings. Elective for Seniors in Finance and Economy. Four hours (*Second Term*).

13. THEORY AND GEOGRAPHY OF COMMERCE.—A study of the theory of commerce. Commercial products and foreign trade of the United States, and of the principal commercial countries. Chisholm's *Commercial Geography.* Lectures and reading. Prescribed for Sophomores in Finance and Economy. Four hours (*Second Term*).

14. PHYSICAL AND ECONOMIC GEOGRAPHY.—A study of elementary physical geography and geology, and their relation to the industrial and social life of the people of the United States. Tarr's *Elementary Physical Geography,* Monographs I to X of the National Geographic Society. Lectures, essays and readings. Prescribed for Freshmen in Finance and Economy. Two hours.

15. TRANSPORTATION.—A study of railway transportation, inland navigation and ocean shipping, with special reference to the United States. Lectures, essays and readings. Elective for Seniors in Finance and Economy. Four hours (*First Term*).

C. Social Science.

Assistant Professor LINDSAY:

3. ELEMENTARY THEORETICAL SOCIOLOGY.—An analysis of the principal stages of social evolution, beginning with the organizations of primitive man, the family, tribe and nation, and treating of the more complicated results of demogenic association. Lectures, assigned readings and essays, in connection with Giddings' *Principles of Sociology,* Spencer's *Introduction to the Study of Sociology and Principles of Sociology,* Maine's *Ancient Law* and *Early History of Institutions.* Two hours (*First Term*). Elective for Juniors in Arts and Science; open also to Seniors.

4. SOCIAL PROBLEMS.—Outline topical studies of the non-economic phases of socialism, labor insurance, unemployment, sanitation, alcoholism, social settlements and housing of the poor. Lectures, with assigned readings and essays. Each student is required to select a concrete social problem and make a special study of it in connection with local conditions in Philadelphia. Two hours (*Second Term*). Elective for Juniors in Arts and Science; open also to Seniors.

20. ELEMENTARY SOCIOLOGY.—I. Study of ancient and modern social ideals, and of the projected types of an ideal society. Plato's *Republic* and Aristotle's *Politics,* followed by *Ideal Commonwealths* (Morley's Universal Library); modern theories con-

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cerning social organization. Four hours (*First Half of Second Term*). Prescribed for Juniors in Finance and Economy. II. Study of social failures, and the efforts to raise and restore social debtor classes, groups and individuals to social efficiency. Pauperism and charities. Criminology. Warner's *American Charities;* Lindsay's *Social Aspects of Philadelphia Relief Work;* Aschrott's *English Poor Law System.* Four hours (*Second Half of Second Term*). Prescribed for Juniors in Finance and Economy.

21. Advanced Sociology.—Study and analysis of historical and existing societies. Special reference to the general stages of social evolution, to the factors in social psychology, to the requisites of social survival, social efficiency and social control. Lectures follow *Manual* and *Outlines.* Assigned readings in Giddings' *Principles of Sociology* and *Theory of Socialization;* Patten's *Theory of Social Forces;* Ross' *Social Control;* Ward's *Dynamic Sociology;* Spencer's *Principles of Sociology;* and others. Four hours (*First Term*). Prescribed for Seniors in Finance and Economy.

22. Elements of Sociology and Social Problems.—I. A study of the psychology of social types and of some historical aspects of social organization, ancient and modern, with special reference to an analysis of the influence of social and physical environment on the growth and solidarity of society. Lectures and assigned reading. II. Outline topical study of a few concrete modern social problems, with emphasis on the best methods to be employed in the examination of such questions. Lectures and practical exercises by members of the class in studying local conditions in Philadelphia. Prescribed for Seniors in Arts and Science in History-Economics group. Three hours (*Second Term*).

23. Sociological Field Work.—A series of excursions in the early part of the year to mills, factories and business establishments in Philadelphia and vicinity. Technical processes will be studied only in so far as they affect social phenomena. Conferences, in which reports will be received and notes compared, will alternate with excursions. In the latter part of the year visits will be made to charitable and correctional institutions. Prescribed for Juniors in Finance and Economy. Two hours.

24. Social Reform and Reformers in the XIXth Century.—A study of the writings of four groups of social reformers; (*a*) The Utopists; Saint Simon, Fourier, Owen, Bellamy and Hertzka; (*b*) The Moral and Ethical group; Kingsley, Maurice, Carlyle, Ruskin, William Morris and Henry George; (*c*) The proletarian socialistic group; Blanc, Proudhon, Lassalle, Schultz-Delitsch, Marx, Engels, Bebel and Liebknecht; (*d*) The Governmental Meliorists; Shaftesbury, Nicholls, the Fabians and others. Elective for Seniors in Finance and Economy. Two hours.

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JOURNALISM.

Professor J. F. JOHNSON:

1. ART AND HISTORY OF NEWSPAPER MAKING.—A study of the growth of the newspaper, especially during the last fifty years. A discussion and criticism of the aims and methods of modern journalism, and a comparison of American with foreign newspapers. The course also includes a discussion of the problems of business management, such as circulation, advertising, wages, trade unions, etc. Collateral reading: Hudson's *History of Journalism,* Milton's *Areopagitica,* Dana's *Art of Newspaper Making,* lives of Bennett, Greeley, Raymond and Bowles. (This course alternates with Journalism 2, and is not given in 1898-99. Prescribed for Juniors and Seniors in the course in Journalism. One hour.

2. NEWSPAPER LAW.—A study of the law of newspaper libel, both common and statutory. Students must obtain copies of *Hatch's Statutes and Constitutional Provisions on Libel and Slander.* The course also includes a discussion of the laws of copyright, and of the postal regulations affecting the rights of publishers. (Journalism 2 alternates with Journalism 1, and is given in 1898-99.) Prescribed for Juniors and Seniors in the course in Journalism. One hour.

3. NEWSPAPER PRACTICE.—Exercises in reporting, in condensation, in the editing of copy, in proof-reading. The aim is to develop in the student an idea of news, and to train him in the use of clear and forceful English. Much use is made of daily newspapers in this course, and students get many suggestions from Shuman's *Steps into Journalism* and Luce's *Writing for the Press.* Prescribed for Freshmen and Sophomores in the course in Journalism. One hour.

3*a*. NEWSPAPER PRACTICE.—A continuation of Journalism 3. Students are required to write articles on topics of current interest for newspapers or magazines. A student who fails to find a market for any of his writing in Junior year will not be allowed to continue in the course during Senior year. Prescribed for Juniors and Seniors in the course in Journalism. One hour.

4. CURRENT TOPICS.—A study of live issues in the United States and England. Each student is required to investigate special topics, and to prepare reports on the same for class-room discussion. Prescribed for Sophomores in the course in Journalism. One hour.

4*a*. CURRENT TOPICS.—Lectures on live issues in the United States and foreign countries. The professor is assisted in this course by other instructors. Prescribed for Juniors and Seniors in the course in Journalism. One hour.

NOTE.—The courses in Journalism are supplemented by lectures by men actively engaged in newspaper work.

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MATHEMATICS.

Professor DOOLITTLE and Assistant Professor CRAWLEY:

16. INTEGRAL CALCULUS.—Osborne's *Calculus*, supplemented by lectures. Prescribed for Juniors in the Engineering courses. Four hours (*First Term*).

15. DIFFERENTIAL AND INTEGRAL CALCULUS.—Osborne's *Calculus*. The methods of differentiation and integration, with numerous applications. Prescribed for Sophomores in Science and Technology, and in the Engineering courses. Four hours (*Second Term*).

Assistant Professors CRAWLEY and SCHWATT:

11. ANALYTIC GEOMETRY.—Nichol's *Analytic Geometry*. The fundamental properties of the Conic Sections, with an introduction to Higher Plane Curves and Solid Analytic Geometry. Prescribed for Sophomores in Science and Technology, and in Civil, Chemical, Mechanical and Electrical Engineering. Four hours (*First Term*).

Assistant Professor CRAWLEY:

13. PLANE ANALYTIC GEOMETRY.—Advanced methods applied to the study of the Conics. Prescribed for Seniors in Arts and Science in the Mathematics-Physics and Mathematics-Astronomy groups. Two hours.

25. METHODS OF CURVE TRACING, with some introduction to the Theory of Higher Plane Curves. Elective for Juniors and Seniors in Arts and Science. One hour.

Assistant Professor FISHER:

15*a*. CALCULUS.—Osborne's *Calculus*. The elements of the Differential and Integral Calculus. Prescribed for Juniors in Arts and Science in the Physics-Mathematics and Mathematics-Astronomy groups. Two hours.

20. QUATERNIONS.—Lectures. For the Faculty Prize open to members of the Junior Class. The lectures are based upon Taite's *Elements of Quaternions*, and, in addition to developing the elementary theory, include some applications to Geometry and Physics. May be taken by any student properly qualified as a first course in the subject. One hour.

22. THEORY OF EQUATIONS.—Burnside and Panton's *Theory of Equations*, including Determinants, with supplementary lectures. Prescribed for Juniors in Arts and Science in the Physics-Mathematics and Mathematics-Astronomy groups. Two hours.

17. CALCULUS.—Advanced work in Differential and Integral Calculus, Williamson, and lectures. Elective for Seniors in Arts and Science who have taken 15*a*, or an equivalent. Two hours.

23. DIFFERENTIAL EQUATIONS.—Forsyth, and lectures. Prescribed for Seniors in Arts and Science in the Physics-Mathematics and Mathematics-Astronomy groups. Three hours.

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20a. QUATERNIONS.—A second course, devoted mainly to physical applications. Course 20, or an equivalent, is a pre-requisite. Elective for Seniors in Arts and Science. Two hours.

10. ANALYTIC GEOMETRY AND SPHERICAL TRIGONOMETRY.—Nichol's *Analytic Geometry.* Crawley's *Elements of Trigonometry.* Elective with History for Sophomores in Arts and Science; required for Sophomores in Architecture. Three hours.

Assistant Professor SCHWATT, Dr. HALLETT and Mr. EVANS:

2. ALGEBRA.—Wells' *College Algebra.* This course differs from 1 below chiefly in the amount and nature of the work in the same topics. Prescribed for Freshmen in Science and Technology, Architecture, and in Civil, Mechanical and Electrical Engineering. Four hours (*One Term*).

Assistant Professor SCHWATT and Dr. HALLETT:

8. PLANE AND SPHERICAL TRIGONOMETRY.—Crawley's *Elements of Trigonometry* (second edition) and Newcomb's *Tables of Logarithms,* supplemented by problems and exercises. This course is open only to students who have passed Mathematics F for admission. Prescribed for Freshmen in Civil, Chemical, Mechanical and Electrical Engineering. Four hours (*First Term*).

Mr. EVANS:

6. PLANE AND SPHERICAL TRIGONOMETRY.—Crawley's *Elements of Trigonometry* (second edition) and Newcomb's *Tables of Logarithms.* Prescribed for Freshmen in Science and Technology, and in Architecture. Four hours (*Second Term*).

Assistant Professor SCHWATT:

28. MODERN GEOMETRY.—Lectures on Brocard's and Grebe's theories of the Plane Triangle; followed by applications of the same to Conic Sections. Elective for Juniors and Seniors in Arts and Science. Two hours.

29. INFINITE SERIES AND PRODUCTS.—Convergency and Divergency of Series. Expansion of Trigonometrical functions of manifold angles into infinite series and products. Hypergeometric series. The series of Fourier and Lagrange. Elective for Juniors and Seniors. Two hours (*Second Term*).

Assistant Professors FISHER and SCHWATT, Dr. HALLETT and Mr. EVANS:

1. ALGEBRA.—Wells' *College Algebra.* This course takes up the theory of Exponents and Logarithms, Permutations, Combinations and Simple Probability. Continued Fractions, Series, Undetermined Coefficients, and the Elements of the Theory of Equations and Determinants. Prescribed for Freshmen in Arts and Science, Chemistry, and in Finance and Economy. Two hours.

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Assistant Professor CRAWLEY, Dr. HALLETT and Mr. EVANS:

3. SOLID GEOMETRY.—Wells' *Geometry*. Prescribed for Freshmen in Arts and Science, Chemistry, Biology, and in Finance and Economy (unless Mathematics E was presented for admission). Two hours (*Until Christmas Recess*).

Assistant Professors CRAWLEY and SCHWATT, Dr. HALLETT and Mr. EVANS:

5. TRIGONOMETRY.—Crawley's *Elements of Trigonometry* (second edition) and Newcomb's *Tables of Logarithms*. Prescribed for Freshmen in Arts and Science, Chemistry, and in Finance and Economy (unless Mathematics F was presented for admission). Two hours (*After Christmas Recess*).

ASTRONOMY.

Professor DOOLITTLE:

1. ASTRONOMY.—Young's *Astronomy*. Three hours (*First Term*). Prescribed for Seniors in Science and Technology (Civil Engineering Section), Seniors in the four-year course in Civil Engineering, and for Juniors in Arts and Science in the Mathematics-Astronomy group.

Professor DOOLITTLE and Mr. EVANS:

2. PRACTICAL ASTRONOMY.—Based upon Doolittle's *Practical Astronomy*, with use of sextant, transit and zenith telescope in determination of Time, Latitude and Azimuth. Prescribed for Seniors in Science and Technology (Civil Engineering Section), and Seniors in the four-year course in Civil Engineering. Three hours (*Second Term*). Prescribed for Juniors in Arts and Science in the Mathematics-Astronomy group. Three hours (*Second Term*).

Mr. DOOLITTLE:

3. Continuation of Course 2, with the Theory of Eclipses and Occultations, Precession, Nutation, Aberration and Stellar Proper Motion; including the method of least squares, with its practical applications to problems of Astronomy. Prescribed for Seniors in Arts and Science in the Mathematics-Astronomy group. Three hours.

4. THEORETICAL ASTRONOMY.—Orbit determination based upon Watson's *Theoretical Astronomy* and Oppolzer's *Lehrbuch zur Bahnbestimmung*, Vol. I. Prescribed for Seniors in Arts and Science in the Mathematics-Astronomy group. Two hours.

CHEMISTRY.

Professor SMITH, assisted by Mr. WALLACE, Dr. FLECK, Dr. SHINN, Dr. MOYER and Mr. TAGGART:

1. GENERAL INORGANIC CHEMISTRY.—The subject is taught by recitation, conversational lectures and laboratory work. All students pursuing the course carry out a series of well-selected experiments illustrating the principles of Chemistry. The Freshmen in the four-year course in Chemistry devote six

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hours per week to the experimental portion of this course; the Freshmen in Chemical Engineering four hours per week. Both classes recite twice per week.

Freshmen in Science and Technology, Mechanical Engineering, Civil Engineering, Architecture, Biology, and Finance and Economy (those who omit Mathematics 3 and 5), and first-year Specials in Biology, as well as the Sophomores in Arts and Science, devote four hours per week to this course. All recite one hour per week.

2. ANALYTICAL CHEMISTRY.—Qualitative Analysis. Laboratory practice with recitations. Preparation of a series of inorganic salts. Sophomores in Science and Technology in the Chemical Section are required to take twelve hours in this subject; Sophomores of the four-year course in Chemistry, from eighteen to twenty hours; Sophomores in Chemical Engineering, twelve hours; Sophomores in Civil Engineering, four hours; Sophomores in Mechanical Engineering, four hours (*First Term*), and Sophomores in Biology, six hours. This course is also prescribed for Juniors in Arts and Science; in the Geology (Mineralogy)-Chemistry group, and is elective for other Juniors in the Courses in Arts and Science.

3. ANALYTICAL CHEMISTRY.—Quantitative Analysis. Practice in both gravimetric and volumetric analysis, with careful drill in mineral analysis. Inorganic preparations continued. Seniors in Science and Technology (Chemical Section) take six hours in this course; Juniors in four-year Chemical course, twelve hours; Juniors in Chemical Engineering, twelve hours, and Sophomores in four-year Mechanical Engineering course, three hours (*Second Term*). Seniors in Arts and Science in the Geology (Mineralogy)-Chemistry group take eight hours in this course.

4. ORGANIC CHEMISTRY.—The instruction is by recitation and lectures. Prescribed for Seniors in Science and Technology (Chemical Section), Seniors in the four-year course in Chemistry, and Juniors in Chemical Engineering. Two hours.

5. ORGANIC CHEMISTRY (Minor Course).—One lecture per week throughout the year, with practical laboratory work, six hours per week for one year. For students in Arts and Science who have completed courses 1, 2 and 3 in part. Required of Juniors in Biology.

6. PRACTICAL ORGANIC CHEMISTRY.—This course consists in the preparation of a series of typical organic compounds, together with ultimate analysis and practice in vapor density and molecular weight determinations. It supplements course 4. Post-Seniors in Science and Technology (Chemical Section). Six hours. Seniors in four-year courses in Chemistry. Twelve hours. Seniors in Chemical Engineering. Ten hours. One hour per week is devoted to recitation.

7. APPLIED CHEMISTRY.—This course consists of lectures upon subjects pertaining both to inorganic and organic Chemistry,

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supplemented by regular excursions to chemical plants in and out of the city. Prescribed for Seniors in Science and Technology (Chemical Section), Seniors in Chemical Engineering, and for Juniors in the four-year course in Chemistry. Lectures by graduates supplement the regular course. Two hours.

8. ANALYSIS OF FOODS AND TECHNICAL PRODUCTS.—This course embraces the analysis of milk, butter, bread, honey, coffee, chocolate, sugar (with the use of the polariscope), pepper, water, soaps, cast-iron, steel, lubricating oils, paints, tanning materials, etc., etc. Lectures and recitations, with practical exercises. One term. Prescribed for Seniors in the four-year course in Chemistry, and for Post-Seniors in Science and Technology (Chemical Section).

9. THEORETICAL CHEMISTRY.—Lectures and recitations. Prescribed for Post-Seniors in Chemistry, and Seniors in the four-year course in Chemistry. One hour.

10. ELECTRO-CHEMISTRY.—Lectures, setting forth the theoretical side of the subject, with applications of the electric current to analysis and to the preparation of chemical products. A laboratory equipped for this work is open to the students. Prescribed for Post-Seniors in Science and Technology (Chemical Section), and for Seniors in Chemistry and Chemical Engineering. One hour for one term.

11. SEMINAR.—The hour devoted to this feature of the instruction is given to the reading of current chemical literature, to the discussion of papers on special topics in Chemistry, or to lectures delivered by advanced students. One hour.

12. ASSAYING.—Gold, silver, lead, iron and coal assays. The course is wholly practical. Prescribed for Juniors in Arts and Science in the Geology (Mineralogy)-Chemistry group; for Juniors in Science and Technology (Chemical Section) and for Juniors in the four-year course in Chemistry and in Chemical Engineering. Four hours.

13. GAS ANALYSIS (Minor Course).—The determination of the constituents of furnace and illuminating gas. Practice is given in the use of the Hempel and the Elliott gas apparatus. Prescribed for Sophomores in Mechanical Engineering. One term.

PHYSICS.

The courses in Physics are classified under the three heads of Elementary Physics (Courses 1 and 2), General Physics (Courses 3, 4, 5 and 6), and Advanced Laboratory Physics (Courses 7, 8, 9 and 10). The courses in Advanced Laboratory Physics must be preceded by the courses in General Physics.

Mr. SWITZER:

1. ELEMENTARY PHYSICS.—Prescribed for Sophomores in Arts and Science, for Sophomores and second-year Specials in Biology and for Sophomores in Architecture. Two hours.

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Assistant Professor GOODSPEED, Mr. SWITZER and Mr. NEWCOMER:

2. ELEMENTARY PRACTICAL PHYSICS.—Prescribed for Freshmen in Chemistry. Methods. One hour. Mr. SWITZER. Laboratory. Three hours. Mr. SWITZER and Mr. NEWCOMER.

Assistant Professor GOODSPEED:

3. MASS PHYSICS, ENERGY.—This course must be preceded by Mathematics 1, 3 and 5, or their equivalents. Prescribed for Sophomores in Science and Technology, and for Freshmen in Chemical, Civil, Electrical and Mechanical Engineering. Two hours (*First Term*).

4. SOUND AND HEAT.—This course must be preceded by 3. Prescribed for Sophomores in Science and Technology, and for Freshmen in Chemical, Civil, Electrical and Mechanical Engineering. Two hours (*Second Term*).

Courses 2, 3 and 4 form the work in Physics of Juniors in Arts and Science in the Mathematics-Physics and Physics-Chemistry groups.

Professor BARKER and Mr. NEWCOMER:

5. RADIATION (including LIGHT) and MAGNETISM.—Lectures, two hours, Professor BARKER; and recitation, one hour, Mr. NEWCOMER. Prescribed for Juniors in Science and Technology, and for Sophomores in Chemical, Civil, Electrical and Mechanical Engineering. This course must be preceded by 3 and 4. (*First Term*).

6. ELECTRICITY.—Lectures, two hours, Professor BARKER; and recitation, one hour, Mr. NEWCOMER. Prescribed for Juniors in Science and Technology, and for Sophomores in Chemical, Civil, Electrical and Mechanical Engineering. This course must be preceded by 3, 4 and 5. (*Second Term.*)

Professor BARKER and Dr. RICHARDS:

10. LABORATORY PRACTICE.—Three hours.

Courses 5, 6 and 10 form the work in Physics of Seniors in Arts and Science in the Mathematics-Physics and Physics-Chemistry groups.

Dr. RICHARDS:

7. PHYSICAL MEASUREMENTS.—Theory and methods of measurement. Prescribed for Seniors in Science and Technology, and for Juniors in Chemical, Civil, Electrical and Mechanical Engineering. One hour.

11. ANALYTIC MECHANICS.—Prescribed for Sophomores in Science and Technology, and in Chemical, Civil, Electrical and Mechanical Engineering. Two hours.

Professor BARKER, Dr. RICHARDS, Mr. SWITZER and Mr. NEWCOMER:

8. PHYSICAL MEASUREMENTS.—Practical work in the laboratory (*First Term*). Dynamical, thermal and optical measurements. Prescribed for Seniors in Science and Technology, and for

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Juniors in Chemical, Civil, Electrical and Mechanical Engineering. Three hours. (In this course, Electrical Engineers take six hours.)

9. PHYSICAL MEASUREMENTS.—Practical work in the laboratory (*Second Term*). Electrical measurements. Prescribed for Seniors in Science and Technology, and for Juniors in Chemical, Civil, Electrical and Mechanical Engineering. Three hours. (In this course, Electrical Engineers take six hours.)

BIOLOGY.

Zoölogy.

Professor CONKLIN and ——— ——— ———:

30. ADVANCED ZOÖLOGY.—Prescribed for Seniors in Biology. Nine hours.

25. SYSTEMATIC STUDY OF RECENT AND FOSSIL VERTEBRATES.—Lectures. Prescribed for Seniors in Biology, and alternate for Second-year Students in the two-year course. (Conducted by Dr. MOORE.) Three hours.

Professor CONKLIN:

6. ANIMAL HISTOLOGY.—Lectures and laboratory work. Prescribed for Seniors in Arts and Science in Groups 13 and 14, and for Juniors in Biology and Second-year Students in the two-year course. Six hours (*First Term*).

7. ANIMAL EMBRYOLOGY.—Lectures and laboratory work. Prescribed for Seniors in Arts and Science in Groups 13 and 14, and for Juniors in Biology and Second-year Students in the two-year course. Six hours (*Second Term*).

Dr. BURK:

4. HUMAN ANATOMY.—Prescribed for Second-year Students in the two-year course, and alternate for Seniors in Arts and Science in Group 14. Six hours.

8. MAMMALIAN ANATOMY.—Morphology of the cat. Prescribed for Sophomores in Biology, Juniors in Arts and Science in Group 14, and First-year Students in the two-year course. Six hours (*First Term*); three hours (*Second Term*).

Dr. CALVERT:

3. SYSTEMATIC STUDY OF THE INVERTEBRATES.—Lectures and laboratory work. Prescribed for Freshmen in Biology, Juniors in Arts and Science in Group 14, and First-year Students in the two-year course. Elective for Juniors in Arts and Science in the Biology-Chemistry group. Three hours (*First Term*); six hours (*Second Term*).

1. ELEMENTARY PHYSIOLOGY.—Prescribed for Sophomores in Biology and First-year Students in the two-year course. One hour.

20. ANIMAL PHYSIOLOGY.—Prescribed for Juniors in Biology and Second-year Students in the two-year course. Three hours.

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Dr. MOORE:

5. ELEMENTARY VERTEBRATE MORPHOLOGY.—Lectures and laboratory work. Prescribed for Juniors in Biology and Second-year Students in the two-year course. Elective for Seniors in Arts and Science in the Biology-Chemistry group, and alternate for Seniors in Arts and Science in Group 14. Three hours (*First Term*); six hours (*Second Term*).

Dr. A. F. WITMER:

2. ANIMAL PATHOLOGY.—Prescribed for Seniors in Biology and Second-year Students in the two-year course. One hour.

BOTANY.

Professor MACFARLANE and Dr. HARSHBERGER:

14. GENERAL STRUCTURAL BOTANY.—Lectures and laboratory work. Six hours (*First Term*). Prescribed for Freshmen in Biology, for Juniors in Arts and Science in Group 14, and First-year Students in the two-year course. Elective for Juniors in Arts and Science in the Biology-Chemistry group.

16. PLANT HISTOLOGY AND PHYSIOLOGY.—Lectures and laboratory work. Six hours (*Second Term*). Prescribed for Freshmen in Biology, for Juniors in Arts and Science in Group 14, and First-year Students in the two-year course. Elective for Juniors in Arts and Science in the Biology-Chemistry group.

Professor MACFARLANE and Dr. PORTER:

15. SYSTEMATIC STUDY OF THE PHÆNOGAMS.—Lectures and laboratory work. Six hours (*Second Term*). Prescribed for Sophomores in Biology, for Seniors in Arts and Science in Group 14, and Second-year Students in the two-year course. Elective for Seniors in Arts and Science in the Biology-Chemistry group.

17. SYSTEMATIC STUDY OF THE CRYPTOGAMS.—Lectures and Laboratory work. Six hours (*First Term*). Prescribed for Sophomores in Biology, for Seniors in Arts and Science in Group 14, and Second-year Students in the two-year course. Elective for Seniors in Arts and Science in the Biology-Chemistry group.

Courses 15 and 17 may be taken together.

Professor MACFARLANE:

26. COMPARATIVE STUDY OF NATURAL ORDERS OF PLANTS.—Lectures and laboratory work. Three hours. Prescribed for Juniors in Biology.

29. ADVANCED BOTANY.—Morphology and Physiology of plants. Nine hours. Prescribed for Seniors in Biology.

Dr. PORTER:

18. COMPARATIVE STUDY OF THE VASCULAR CRYPTOGAMS.—Lectures and laboratory work. Three hours. Prescribed for Juniors in Biology.

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SANITARY SCIENCE.

Dr. BERGEY:

1. SANITARY SCIENCE.—Lectures on heating and ventilation in their relation to architectural practice. Illustrated by models and drawings. Prescribed for Juniors and First-year Specials in Architecture. One hour (*First Term*).
2. SANITARY SCIENCE.—Lectures on plumbing and drainage in their relation to architectural practice. Illustrated by models and drawings. Prescribed for Seniors and Second-year Specials in Architecture. One hour (*Second Term*).

METALLURGY.

Assistant Professor BROWN:

1. THEORY OF METALLURGICAL PROCESSES.—The dressing and mechanical treatment of ores. Prescribed for Seniors in Science and Technology and in Civil Engineering, and for Juniors in Mechanical and Chemical Engineering, and in Chemistry. Two hours (*Second Term*).
4. LECTURES.—The production of pig, weld, and temper iron, and of silver, copper and lead. Optional for Post-Seniors in Chemistry. Two hours. The class also visits from time to time metallurgical works in the city and State.

MINERALOGY.

Assistant Professor BROWN:

1. MINERALOGY.—Crystallography, native elements, sulphides, chlorides, fluorides and oxides. Prescribed for Juniors in Science and Technology (Chemical Section); for Juniors in Arts and Science in the Geology-Chemistry group, and for Sophomores in Chemistry. Two hours.
2. MINERALOGY.—Carbonates, silicates, sulphates, phosphates, etc. Prescribed for Seniors in Science and Technology (Chemical Section); for Seniors in Arts and Science in the Geology-Chemistry group, and for Juniors in Chemistry. Two hours.
3. DETERMINATIVE MINERALOGY.—Prescribed for Post-Seniors in Civil Engineering. Seniors in Science and Technology (Chemical Section); for Juniors in Arts and Science in the Geology-Chemistry group, and Juniors in Chemistry and Civil Engineering (four-year course). Two hours.
4. PHYSICAL MINERALOGY.—Determination of minerals by physical properties, use of contact and reflecting goniometer, polariscope, stauroscope, refractometer, etc. Prescribed for Seniors in Arts and Science in the Geology-Chemistry group. Two hours (*First Term*).
5. MINERALOGY. (Briefer Course.)—This course embraces the salient points of 1 and 2, but only such minerals as are of economic importance are considered. Prescribed for Post-Seniors in Civil Engineering, and for Seniors in the four-year course in Civil Engineering. Two hours.

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GEOLOGY.

Assistant Professor BROWN:

1. LITHOLOGY.—Lectures. Prescribed for Juniors in Arts and Science in the Geology-Chemistry group. Two hours (*First Term*).

2. LITHOLOGY.—Laboratory work. Prescribed for Seniors in Arts and Science in the Geology-Chemistry group. Two hours.

3. STRATIGRAPHY of the rock systems in connection with Paleontology, laws of Dynamic Geology, Structural Geology of North America with reference to that of Europe, with the principal minerals and fossils and distribution of metals and fuels. Prescribed for Post-Seniors in Chemistry and in Civil Engineering, and for Seniors in Chemistry (four-year course); for Seniors in Arts and Science in the Geology-Chemistry group, and for Juniors in Biology. Two hours.

4. FIELD WORK.—Prescribed for Juniors and Seniors in Arts and Science in the Geology-Chemistry group. Three hours (*Second Term*).

ARCHITECTURE.

Professor LAIRD:

A 9 ELEMENTARY DESIGN.—Problems in the elements of Architecture, given by lectures and dictation. Preparing for courses A 12, B 1, B 2, B 5, B 6 and B 10. Accompanied by exercises in A 10 and A 11. Two hours (*First Term*). Freshmen in Architecture.

A 13. THE FIVE ORDERS OF ARCHITECTURE.—Analysis of the five Orders of Classic Architecture. Lectures and blackboard drill, accompanied by A 14. Freshmen in Architecture. Two hours (*Second Term*). First-year Specials in Architecture and Third-year Students in Interior Decoration. Three hours (*Major part of First Term*).

B 11. ELEMENTS OF DESIGN.—Analysis of the elements employed in Classic and Renaissance design. Lectures. Accompanied by B 12. Sophomores in Architecture. Two hours (*First Term*). First-year Specials and Third-year Students in Interior Decoration. Three hours (*Latter part of First Term and First part of Second Term*).

Professor DANA:

D 5. WATER-COLOR RENDERING.—Advanced studies in the rendering of architectural perspectives. Seniors in Architecture, and Second-year Specials in Architecture who have completed C 5. Three hours.

E 11. WATER-COLOR RENDERING.—Studies in the rendering of architectural perspectives, continued from advanced work of Senior year. Post-Seniors in Architecture. Six hours.

Mr. PERKINS:

C 6. SKETCH DESIGN.—Problems to be rendered in sketch form, under time limit of three to six hours. Alternating with the regular problems in design. Juniors in Architecture.

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C 7. DESIGN.—Problems in design, developing the principles of planning and composition. Juniors in Architecture. Fifteen hours. Second-year Specials twenty-five hours.

D 6. SKETCH DESIGN—Advanced problems to be rendered in sketch form, under time limit of three to six hours. Alternating with the regular problems in design. Seniors in Architecture (*First Term*). Second-year Specials in Architecture (*Second Term*).

D 7. ADVANCED DESIGN.—Advanced problems in design, completing the studies in planning and composition. Seniors in Architecture. Twenty-five hours (*First Term*). Second-year Specials in Architecture. Thirty hours (*Second Term*).

D 8. THESIS.—An extended problem in planning and composition, accompanied by descriptive essay and memoir on construction. Seniors in Architecture. Thirty hours (*Second Term*).

E 13. DESIGN.—Problems in the study of planning and composition of monumental structures. Post-Seniors in Architecture. Thirty hours.

Assistant Professor EVERETT:

D 1. DRAWING FROM THE ANTIQUE.—Seniors in Architecture and Second-year Specials in Architecture who have completed C 1. Four hours.

D 4. DESIGN IN HISTORIC ORNAMENT.—Weekly problems in the composition of ornament, accompanied by lectures on the history of Ornament. Seniors and Second-year Specials in Architecture, and First-year Students in Interior Decoration. Nine hours.

D 15. HISTORY OF ART.—A course of lectures upon the history of Sculpture and Painting, accompanied by the use of text-book. Seniors in Architecture. One hour.

E 10. ANTIQUE.—Advanced work in drawing from the Antique. Post-Seniors in Architecture. Four hours.

E 12. ORNAMENT.—Advanced problems in the composition of historic ornament, including the study of full-sized details. Post-Seniors in Architecture. Nine hours.

Assistant Professor MILLARD:

B 2. SHADES AND SHADOWS.—Lectures and exercises. Millard's *Shades and Shadows*. Sophomores and First-year Specials in Architecture, and Second-year Students in Interior Decoration. Three hours (*First Term*).

B 5. PERSPECTIVE.—Lectures and problems on theory, and exercises in architectural subjects. Sophomores and First-year Specials in Architecture, and Second-year Students in Interior Decoration. Three hours (*Second Term*).

C 10 MECHANICS OF MATERIALS.—Principles of mechanics, and their application in the use of building materials. Lectures and quizzes. Juniors and First-year Specials in Architecture. Three hours (*First Term*).

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C 11. GRAPHIC STATICS.—An application of graphic methods to the analysis of strains in trusses, piers, arches and abutments. Lectures and exercises. Juniors and First-year Specials in Architecture. Three hours (*Second Term*).

Mr. DAWSON:

B 1. FREEHAND DRAWING.—Drawing from casts of architectural ornament in charcoal and pencil. Sophomores and First-year Specials in Architecture, and First-year Students in Interior Decoration. Four hours.

C. 1. FREEHAND DRAWING.—Drawing in charcoal from casts of architectural ornament; from casts of parts of the human figure, and in pencil photographs. Juniors and Second-year Specials in Architecture. (With Assistant Professor EVERETT.) Four hours.

C 5. WATER-COLOR DRAWING.—Drawing in water-color from still life, and from nature. Juniors and Second-year Specials in Architecture, and First-year Students in Interior Decoration. Three hours.

I 1. FREEHAND DRAWING.—Drawing in pencil from the object. Prescribed for Freshmen in Chemistry. Two hours.

I. 3. FREEHAND DRAWING.—(*a*) Drawing in pencil from the object. (*b*) Drawing biological specimens from the object in pencil. Prescribed for Freshmen in Biology. Three hours.

Mr. BOYDEN:

C 14 and D 14. BUILDING CONSTRUCTION.—The nature and use of stone, lime and cement, wood, iron and steel, clay products, etc. Modern practice in constructions of masonry, wood, iron and steel. Plastering, painting and wood finish. Lectures, demonstrations and visits of inspection. Juniors and Seniors; First and Second-year Specials in Architecture. One hour (*Throughout Two Years*).

Mr. HAYS:

C 3. PEN AND INK RENDERING.—Theory of the composition of line drawings. Rendering of architectural drawings in pen and ink. Juniors and First-year Specials in Architecture, and Second-year Students in Interior Decoration. Two hours.

D 13. PEN AND INK RENDERING.—Advanced studies in the rendering of architectural drawings in pen and ink. Elective for those who have completed C 3. Two hours (*First Term*).

Mr. PILCHER:

A 12. GRAPHICS.—Problems and exercises in lettering, projections, intersections and developments, descriptive geometry and elementary shades and shadows. Freshmen in Architecture. Two hours (*First Term*).

A 15. ARCHÆOLOGY.—Archæology and Ancient Architectural History, comprising the study of history and monuments, to the

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time of the Emperor Diocletian. Lectures, recitations and drawing. Freshmen and First-year Specials in Architecture. Three hours.

B 15. HISTORY OF RENAISSANCE AND MODERN ARCHITECTURE.—Lectures, recitations and drawing. Sophomores and Second-year Specials in Architecture. Two hours.

C 15. HISTORY OF MEDIÆVAL ARCHITECTURE.—Lectures, recitations and drawing. Juniors and Second-year Specials in Architecture. Two hours.

Mr. NOLAN:

A 10. ELEMENTARY DESIGN.—Exercises in instrumental drawing, developing problems in the elements of Architecture given in A 9. Preparing for courses A 12, B 1, B 2, B 5, B 6 and B 10. Freshmen in Architecture. Ten hours (*Alternate weeks in First Term*). (With Mr. DAWSON.)

A 11. ELEMENTARY DESIGN.—Exercises in freehand drawing, developing problems in the elements of Architecture given in A 9. Preparing for courses A 12, B 1, B 2, B 5, B 6 and B 10. Freshmen in Architecture. Ten hours (*Alternate weeks in First Term*). (With Mr. DAWSON.)

A 14. THE FIVE ORDERS OF ARCHITECTURE.—Exercises in drawing and rendering the five orders of Classic Architecture, based on A 13. First-year Specials in Architecture. Twelve hours (*First part of First Term*). Freshmen in Architecture. Ten hours (*Second Term*).

B 9. PROBLEMS IN THE ORDERS.—Problems in design, involving the use of the Orders and the Elements of Design. Sophomores in Architecture. Eight hours (*First part of Second Term*). First-year Specials in Architecture. Fifteen hours (*Part of Second Term*).

B 12. ELEMENTS OF DESIGN.—Exercises in drawing and rendering the elements employed in Classic and Renaissance design, based on B 11. Sophomores in Architecture. Seven hours (*First Term*). First-year Specials in Architecture. Twelve hours (*Latter part of First Term and First part of Second Term*).

B 13. DESIGN.—Problems in design, introducing the principles of planning and composition. Sophomores in Architecture. Eight hours (*Major part of Second Term*). First-year Specials in Architecture. Fifteen hours (*Latter part of Second Term*).

SUMMER WORK, as specified in an annual programme, is required of all students during summer vacations between the first and last years of their course. It consists of the preparation of a certain number of sketches; or, if the student so elect, of work for a specified period in the employ of a practising architect.

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DECORATION.

Assistant Professor EVERETT:

G 2. COLOR STUDY.—Studies in water color of tapestries and other fabrics executed in color, with reference to harmony and contrast of color and color composition. First-year Students in Interior Decoration. Three hours (*Second Term*).

H 1. FREEHAND DRAWING.—Advanced drawing in charcoal from casts of ornament and from the object, with special reference to the Second-year studies in Interior Decoration. Second-year Students in Interior Decoration. Four hours.

H 2. COLOR STUDY.—Advanced color studies in executed decorations, with reference to harmony and contrast of color and color composition. Second-year Students in Interior Decoration. Three hours (*Second Term*).

H 5. PROBLEMS IN DESIGN, WITH CRITICISMS.—Weekly problems in the design of interiors, involving the study of the composition of Interior Decorations. Employing the various studies in the composition of ornament enumerated in D 4. Optional as an alternative with H 8 for Second-year Students in Interior Decoration. Twelve hours.

H 8. FURNITURE DESIGN.—Problems, criticisms and lectures upon the designing of furniture in the historic styles. Optional as an alternative with H 5 for Second-year Students in Interior Decoration. Eight hours.

J 1. FREEHAND DRAWING.—Advanced drawing in charcoal from developed forms of architectural ornament and from casts of the human figure. Third-year Students in Interior Decoration. Four hours.

J 4. FURNITURE DESIGN.—Advanced problems, criticisms and lectures upon the general designing of furniture, completing the studies in the subject begun in H 8. Optional as an alternative with J 5 for Third-year Students in Interior Decoration. Fifteen hours.

J 5. PROBLEMS IN DESIGN, WITH CRITICISMS.—Advanced problems in the composition of interiors. Optional as an alternative with J 4 for Third-year Students in Interior Decoration. Fifteen hours.

D 4. See under ARCHITECTURE.

Professor LAIRD:

A 13. See under ARCHITECTURE.

B 11. See under ARCHITECTURE.

J 7. THE FIVE ORDERS OF ARCHITECTURE.—Exercises in drawing based on A 13. Third-year Students in Interior Decoration. Three hours (*First part of First Term*).

J 9. ELEMENTS OF DESIGN.—Exercises in drawing based on B 11. Third-year Students in Interior Decoration. Three hours (*Latter part of First Term and First part of Second Term*).

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Assistant Professor MILLARD:

B 2. See under ARCHITECTURE.

B 1. See under ARCHITECTURE.

Mr. DAWSON:

B 1. See under ARCHITECTURE.

C 5. See under ARCHITECTURE.

H 9. WATER-COLOR DRAWING.—Drawing in water-color from still life and from nature. Second-year Students in Interior Decoration. Three hours.

J 6. WATER-COLOR DRAWING.—Drawing in water-color from still life and nature. Third-year Students in Interior Decoration. Three hours.

Mr. HAYS:

C 3. See under ARCHITECTURE.

Mr. PILCHER:

G 6. INSTRUMENTAL DRAWING.—Elementary problems in geometrical drawing, involving pen and pencil drawing with the instruments. First-year Students in Interior Decoration. Four hours (*First Term*).

CIVIL ENGINEERING.

Professor MARBURG:

A 1. MECHANICS OF MATERIALS.—The resistance and elasticity of materials. Theory of flexure applied to beams and columns. Torsion. Effect of impact. Resilience, fatigue, etc. Prescribed for Juniors in Science and Technology (Civil Engineering Section), and for Juniors in the four-year course. Four hours (*First Term*).

A 2. MATERIALS OF CONSTRUCTION.—Physical characteristics of the materials of construction, and the conditions by which these are influenced. Prescribed for Post-Seniors in Civil Engineering, and for Seniors in the four-year course. Two hours (*First Term*).

B 1. GRAPHIC STATICS.—Graphic methods applied to the determination of stresses, bending moments, shears, etc. Prescribed for Seniors in Science and Technology (Civil Engineering Section), and for Juniors in the four-year course. Two hours (*Second Term*).

B 2. FRAMED STRUCTURES.—Determination of stresses by analytic methods. Relative merits of different types of bridge trusses. Details of construction. Prescribed for Seniors in Science and Technology (Civil Engineering Section), and for Juniors in the four-year course. Four hours (*Second Term*).

B 3. SUSPENSION, CANTILEVER, ARCH AND SWING BRIDGES.—Determination of stresses in bridges of these types by analytic

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methods. Prescribed for Post-Seniors in Civil Engineering, and for Seniors in the four-year course. Two hours (*First Term*).

B 4. BRIDGE DESIGNING.—Complete design of a plate girder bridge. Computations and detail drawings. Prescribed for Seniors in Science and Technology (Civil Engineering Section), and for Juniors in the four-year course. Two hours (*Second Term*).

B 5. BRIDGE DESIGNING.—Complete design of a railroad bridge. Pratt truss. Computations and detail drawings. Prescribed for Post-Seniors in Civil Engineering, and for Seniors in the four-year course. Four hours.

Professor MARBURG and Mr. ROMMEL:

A 3. TESTING LABORATORY.—Tests for determining the properties of the materials of engineering. Prescribed for Post-Seniors in Civil Engineering, and for Seniors in the four-year course. Two hours (*First Term and first half of Second Term*).

Professor MARBURG, Assistant Professor WEBB and Mr. EASBY:

L 1. INSPECTION TOURS.—Visits to Engineering works and manufacturing establishments. Prescribed for Post-Seniors in Civil Engineering, and for Seniors in the four-year course. At hours assigned.

M 1. THESIS.—Thesis on a professional subject. Required of Post-Seniors in Civil Engineering, and of Seniors in the four-year course. Six hours (*Second Term*).

Assistant Professor WEBB:

C 1. MASONRY.—Foundations, dams, retaining walls, piers, abutments, culverts and arches. Prescribed for Seniors in Science and Technology (Civil Engineering Section), and for Seniors in the four-year course. Three hours (*First Term*).

E 1. RAILROAD SURVEYING.—Theory relating to railroad surveying. Prescribed for Juniors in Science and Technology (Civil Engineering Section), and for Sophomores in the four-year course. Four hours (*Second Term*).

E 3. RAILROAD CONSTRUCTION AND EQUIPMENT.—Earthwork trestles, tunnels, track-work, signaling, etc. Rolling stock and train resistances. Prescribed for Seniors in Science and Technology (Civil Engineering Section), and for Juniors in the four-year course. Three hours (*First Term*).

E 4. RAILROAD ECONOMICS.—General theory of the inception and completion of railroad projects; probable volume of traffic and its probable growth; effect of details of alignment on operating expenses and revenue; the methods of railroad management. Prescribed for Post-Seniors in Civil Engineering, and for Seniors in the four-year course. Three hours (*First Term*).

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F 1. ELEMENTARY GEODESY.—Study of the instruments and field methods used in geodetic surveying. Prescribed for Seniors in Science and Technology (Civil Engineering Section), and for Juniors in the four-year course. One hour (*Second Term*).

F 2. GEODESY.—Practice in the use of instruments of precision for the measurement of base-lines, angles and differences of level. Prescribed for Seniors in Science and Technology (Civil Engineering Section), and for Juniors in the four-year course. Three hours (*Second half of Second Term*).

F 3. ADVANCED GEODESY.—Figure of the earth. Application of the theory of probable error to the adjustment of geodetic calculations. Prescribed for Post-Seniors in Civil Engineering, and for Seniors in the four-year course. Two hours (*Second Term*).

G 1. ROADS AND PAVEMENTS.—Construction, maintenance and cost. Consideration of the relative merits of the various types. Prescribed for Seniors in Science and Technology (Civil Engineering Section), and for Sophomores in the four-year course. One hour (*First Term*).

J 3. MAP DRAWING.—Map of hydrographic and topographical survey made during the previous summer. Prescribed for Seniors in Science and Technology (Civil Engineering Section), and for Sophomores in the four-year course. Two hours (*First Term*).

Assistant Professor WEBB and Mr. EASBY:

D 2. SURVEYING.—Practice in the adjustment and use of field and office instruments. Prescribed for Juniors in Science and Technology (Civil Engineering Section), and for Freshmen in the four-year course. Three hours.

In addition to the hours above mentioned, a special farm survey is made during the second term, and, at the end of this term, two entire weeks are devoted to an extended topographic and hydrographic survey.

E 2. RAILROAD SURVEYING.—Practice in staking out curves, cross-sectioning, setting of slope stakes, etc. Prescribed for Juniors in Science and Technology (Civil Engineering Section), and for Sophomores in the four-year course. Three hours (*Second half of Second Term*).

In addition to the hours above mentioned, two entire weeks, at the end of the second term, are devoted to field practice in laying out a short line of railroad; including reconnaisance, preliminary survey, location, determination of grades, cross-sectioning and drawing of the map and profile.

Mr. EASBY:

D 1. SURVEYING.—Theory relating to the use and adjustments of the instruments; theory of topographic, hydrographic, mining and city surveying. Prescribed for Juniors in Science and Technology (Civil Engineering Section), and for Freshmen in the four-year course. Two hours (*First Term*). One hour (*Second Term*).

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H 1. HYDROMECHANICS.—Pressure and energy of fluids. Flow by orifices, tubes and weirs. Flow in pipes, conduits, canals and natural streams. Current meters. Hydraulic motors. Measurement of water power. Prescribed for Seniors in Science and Technology (Civil Engineering Section), and for Juniors in the four-year course. Four hours (*Second Term*).

H 2. SANITARY ENGINEERING SYSTEMS.—Sewers and drains. Construction and ventilation. House drainage. Disposal of sewage. Prescribed for Seniors in Science and Technology (Civil Engineering Section), and for Juniors in the four-year course. Two hours (*Second Term*).

H 3. HYDRAULIC WORKS.—The designing of water and sewerage works. The purification of public water supplies. Prescribed for Post-Seniors in Civil Engineering, and for Seniors in the four-year course. Four hours (*First Term*).

I 1. LETTERING.—Freehand lettering. Prescribed for Sophomores in Science and Technology, and for Freshmen in the four-year course. Two hours (*First Term*).

J 2. COLORED TOPOGRAPHY.—Conventional methods of representation. Elementary exercises. Prescribed for Seniors in Science and Technology (Civil Engineering Section), (*Second Term*), and for Sophomores in the four-year course. Two hours (*First Term*).

Mr. ROMMEL:

I 2. MECHANICAL DRAWING.—Drafting instruments and operations; elementary projections; line and brush shading, coloring, graining, representation of earthwork and masonry. Prescribed for Freshmen in Science and Technology, and for Freshmen in the four-year course. Three and four hours respectively.

J 3. MECHANICAL DRAWING.—Graphic construction of problems relating to shades and shadows and perspective. Prescribed for Sophomores in the four-year course. Two hours (*First Term*).

J 1. PEN TOPOGRAPHY.—Conventional signs. Elementary exercises. Prescribed for Juniors in Science and Technology (Civil Engineering Section), and for Freshmen in the four-year course. Two hours (*Second Term*).

K 1. PROJECTIONS.—Elementary plane problems. Orthographic projections in one quadrant. Isometric and oblique projections. Elementary problems in shades and shadows, and linear perspective. Prescribed for Freshmen in the four-year course. Two hours (*Second Term*).

K 2. DESCRIPTIVE GEOMETRY.—Problems of the point, line and plane; single-curved, double-curved and warped surfaces; intersections, tangencies and developments. Shades and shadows. Perspective. Prescribed for Sophomores in Science and Technology, two years (*Both Terms*), and Sophomores in the four-year course, three hours (*First Term*).

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K 4. STEREOTOMY.—Stone cutting. Determination of the forms and sizes of stones in masonry constructions. Prescribed for Seniors in Science and Technology (Civil Engineering Section), and for Juniors in the four-year course. One hour (*First Term*).

MECHANICAL ENGINEERING.

The courses in Mechanical Engineering are open to students who have pursued the course in Science and Technology in the Freshman and Sophomore years; to students in the four-year technical course; or to others who have had Mathematics 1, 3, 5, 10 and 15, or 2, 6, 11 and 15, Physics 1, and the equivalent of Mechanical Engineering 4.

Professor SPANGLER:

7. KINEMATICS.—Laws of motion. Combinations of pure mechanism. Pulleys and belts. Trains of gearing and forms of teeth of wheels. Link work. Prescribed for Post-Seniors in Mechanical Engineering. Wood and Stahl's *Kinematics*. Two hours.

16. MARINE ENGINEERING AND NAVAL ARCHITECTURE.—Naval architecture. Thearle's *Theoretical Naval Architecture*. Sennett's *Marine Engines*. Prescribed for Post-Seniors in Mechanical Engineering, and for Seniors in the four-year Mechanical Engineering course. Voluntary for others having the necessary preparation. One hour.

19. SPECIFICATIONS.—Methods of drawing specifications and contracts for engines, boilers, foundations, etc. Making estimates as to cost, weight, etc. Prescribed for Post-Seniors in Mechanical Engineering. One hour (*Second Term*).

23. STEAM ENGINES AND BOILERS.—Short course. For students in Civil Engineering only. Two hours.

24. ELECTRICITY.—Graphic analysis of alternating currents. Blakesley's *Alternating Currents*. Voluntary for Post-Seniors and Seniors in the four-year course in Mechanical Engineering. Prescribed for Seniors in Electrical Engineering. One hour.

14. THERMODYNAMICS.—Mechanical theory of heat. Application to steam, air and gas engines, and refrigerating machinery. Prescribed for Post-Seniors in Mechanical Engineering; for Seniors in the four-year courses, and in Chemical Engineering. Three hours.

Professor SPANGLER and Mr. SMITH:

18. VISITS TO MANUFACTURING ESTABLISHMENTS.—Students are required to visit various machine shops, foundries, iron and steel rolling-mills, shipyards, electric light plants, etc.; to make reports (illustrated) on the general arrangement of plants,

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arrangement of power, tools, etc., in shops; descriptions of particular machines and processes. Prescribed for Post-Seniors in Mechanical Engineering, and Seniors in the four-year courses. Sixteen weeks, one visit per week.

Mr. STEWART:

3. HYDRODYNAMICS.—The design of reaction and impulse turbines, measurement of flowing water, description and discussion of experiments. Hydraulic pressure engines. Bodmer's *Hydraulic Motors.* Must be preceded by 1 and 2. Prescribed for Post-Seniors in Mechanical Engineering, and for Seniors in the four-year courses. Two hours.

Professor SPANGLER, Mr. STEWART and Mr. SMITH:

4*b*. DESCRIPTIVE GEOMETRY.—Application of principles to mechanical drawing. Prescribed for Freshmen in the four-year courses. Faunce's *Descriptive Geometry.* One hour.

22. GRAPHIC STATICS.—Principles of graphic statics, and their application to cranes, bridges, roof-trusses and other framed structures. The graphics of machinery. Prescribed for Juniors in Science and Technology (Mechanical Engineering Section), and for Sophomores in the four-year courses and in Chemical Engineering. Merriman and Jacoby's *Roofs and Bridges,* Part II. Church's *Notes and Examples in Mechanics.*

Mr. SCHRAMM and Mr. WALDO:

11. ELECTRICITY AND MAGNETISM.—The study of phenomena, principles and laws. The derivation of units of measurement. The methods of electrical measurements. Joubert's *Electricity and Magnetism,* by Foster and Atkinson. Ayrton's *Practical Electricity.* Prescribed for Seniors in Science and Technology (Mechanical Engineering Section), and for Juniors in the four-year courses and in Chemical Engineering. Two hours.

20. ELECTRICITY AND MAGNETISM.—Measurement of electrical quantities and the construction of electrical instruments, continued from previous year. Ayrton's *Practical Electricity.* Prescribed for Post-Seniors in Mechanical Engineering, and for Seniors in the four-year courses and in Chemical Engineering. Three hours (*First Term*).

21*b*. ELECTRODYNAMICS.—Dynamo design. Jackson's *Electro-Magnetism and the Construction of Dynamos.* Prescribed for Post-Seniors in Mechanical Engineering and Seniors in Electrical Engineering. Two hours (*Second Term*).

21*c*. ELECTRODYNAMICS.—Principles and construction of dynamo-electric machinery, arc and incandescent lamps, secondary cells, commercial instruments, etc. Slingo and Brooker's *Electrical Engineering.* Prescribed for Post-Seniors in Mechanical Engineering, and for Seniors in the four-year courses and in Chemical Engineering. Two hours (*First Term*); three hours (*Second Term*).

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Mr. SCHRAMM:

21. ELECTRICAL LABORATORY WORK.—Wiring, testing dynamos, motors and storage batteries, calorimetry, measurement of currents, insulation, etc. Prescribed for Post-Seniors in Mechanical Engineering, and Seniors in Electrical Engineering. Six hours.

21*d*. ELECTRICAL LABORATORY WORK.—Prescribed for Seniors in the four-year course in Mechanical Engineering and in Chemical Engineering. Three hours.

Mr. WALDO:

11*a*. TELEGRAPHY AND TELEPHONY.—Preece and Siveright's *Telegraphy*. Two hours (*First Term*). Telephony. Preece and Stubb's *Telephony*. Two hours (*Second Term*). Prescribed for Juniors in Electrical Engineering.

21*a*. ELECTRODYNAMICS.—Laboratory work. Prescribed for Juniors in the four-year courses and in Chemical Engineering. Three hours.

Mr. PICOLET:

4. DRAWING.—Elementary mechanical drawing. Use of instruments. Copying working drawings, tracing and blue printing, making working sketches and drawings of pieces of machinery from the model. Prescribed for Juniors in Science and Technology (Mechanical Engineering Section), and for Sophomores in the four-year courses and in Chemical Engineering. Three hours.

4*a*. SKETCHING AND DRAWING.—Making working sketches, finished drawings, tracings and blue prints from the tools and machines in the laboratories. Must be preceded by 4. Prescribed for Seniors in Science and Technology (Mechanical Engineering Section), and for Juniors in the four-year courses. Three hours.

4*c*. DRAWING.—Geometric drawing. Descriptive geometric problems, and elementary mechanical drawing. Use of instruments. Prescribed for Freshmen in four-year courses, and in Chemical Engineering. Three hours.

17. DESIGNING MACHINERY.—Continuation from Senior year of work on steam engines and boilers. Application of the principles of design to special machinery. Prescribed for Post-Seniors in Mechanical Engineering, and for Seniors in the four-year courses and in Chemical Engineering. Four hours, and one afternoon.

Mr. MORRIS and Mr. MCCONNELL:

12. SHOP WORK.—Manual training in wood and iron work. Prescribed for Juniors in Science and Technology (Mechanical Engineering Section). Six hours.

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12*a*. SHOP WORK.—Manual training in wood and iron work. Prescribed for Freshmen in the four-year courses and in Chemical Engineering. Six hours (*First Term*); three hours (*Second Term*).

12*b*. SHOP WORK.—Continuation of 12*a*. Prescribed for Sophomores in the four-year courses and in Chemical Engineering. Six hours.

13. SHOP WORK.—Making patterns from working drawings, finishing castings, and making, finishing and fitting parts of machinery. Pipe fitting. Must be preceded by 12. Prescribed for Seniors in Science and Technology (Mechanical Engineering Section. Nine hours (*First Term*); three hours (*Second Term*).

MR. GREENE:

8. STEAM ENGINE.—Determination of the proper proportions for cylinders, valves, pistons, rods, shafts, fly-wheels, etc. Making rough sketches and working drawings from original designs. Marks' *The Steam Engine.* Unwin's *Machine Design,* Part II. Each student is required to design the principal parts of an engine after one of the well-known types, calculating the parts when the question of strength enters, and following the general design of the chosen type when the proportions are matters of experience. Must be preceded by 1, first part of 2, 4, 5 and 6. Prescribed for Seniors in Science and Technology (Mechanical Engineering Section). Four hours (*Second Term*). Seniors in the four-year courses and in Chemical Engineering. Two hours.

9. STEAM BOILERS.—Value of fuels, determination of proper proportions for grate and heating surfaces, area and height of chimneys, thickness of shell, size of braces, etc., for various forms of boilers. Making rough sketches and working drawings from original designs. Wilson's *Steam Boilers.* Low and Bevis' *Machine Drawing and Design.* Each student is required to design the principal parts of a boiler after one of the well-known types, in the same manner as prescribed for 8. Course 9 must be preceded by 1, 4, 5 and first part of 2. Prescribed for Seniors in Science and Technology (Mechanical Engineering Section). Four hours (*First Term*). Prescribed for Juniors in the four-year courses and in Chemical Engineering. Two hours.

15. THERMODYNAMICS.—Testing engines, boilers, gauges and indicators, determining duty of pumps and injectors; calorimetric work. Laboratory work. Prescribed for Post-Seniors in Mechanical Engineering, and for Seniors in the four-year course in Mechanical Engineering. Six hours.

MR. GREENE and MR. SMITH:

1. STATICS.—Application of the principles of statics to rigid bodies. Elasticity and strength of materials. Forms of uniform

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strength. Designing of beams, columns and shafts, according to the principles laid down. Merriman's *Mechanics of Materials.* Prescribed for Juniors in Science and Technology (Mechanical Engineering Section), and for Juniors and Sophomores in the four-year courses and in Chemical Engineering. As this course underlies the entire work in Mechanical Engineering, it is continued until a thorough practical knowledge of the subject is obtained. Two hours (*until finished*).

Mr. GREENE and Mr. STEWART:

15*a*. MECHANICAL LABORATORY WORK.—Determination of leverages and speeds, testing engine boilers, gauges and indicators, determination of efficiencies of machines and the value of materials of engineering. Prescribed for Juniors in the four-year courses and in Chemical Engineering, and for Seniors in Electrical Engineering. Three hours.

Mr. STEWART and Mr. SMITH:

2. HYDROSTATICS AND HYDRAULICS.—Transmission of pressure, determining centres of pressure and amount of same under different conditions. Depth of flotation and stability. Theoretical hydraulics. Flow through orifices, over weirs, through tubes; designing dams, flow in pipes, conduits and canals, water meters, measurement of water power and theory of hydraulic motors. Principles of propulsion of ships. Merriman's *Hydraulics.* Prescribed for Seniors in Science and Technology (Mechanical Engineering Section), and for Juniors after Statics is finished; and for Juniors in the four-year courses and in Chemical Engineering. Two hours.

5. THE STEAM ENGINE.—Description of engines and boiler covering, the detail of cylinders, pistons, valves, connecting rods, bed plates, governors, foundations, the ordinary type of boilers with their settings. Holmes' *The Steam Engine,* supplemented by the engines and boilers in the laboratory. Prescribed for Juniors in Science and Technology (Mechanical Engineering Section), and for Freshmen in the four-year courses and in Chemical Engineering. Two hours.

6. KINEMATICS.—General mathematical theory of slide-valve and link motions, and its practical application in designing mechanism of valve motion for automatic and marine engines. Zeuner diagram applied to the principal automatic and radial gears, as well as to the slide-valve. Spangler's *Valve Gears.* Prescribed for Juniors in Science and Technology (Mechanical Engineering Section), and for Sophomores in the four-year courses. Two hours.

7*a*. KINEMATICS.—Elementary combinations. Pulleys and belts, link work, gearing, etc. Goodeve's *Elements of Mechanism.* Prescribed for Sophomores in the four-year courses and in Chemical Engineering. Three hours (*First Term*).

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MUSIC.

Professor CLARKE:

1. HARMONY.—First year. Formation of major scale. The chords of the major scale; the laws of their succession and inversion. The minor scale. The relation of scales. Dissonant chords; the laws governing their formation and progression; the employment of dissonants that are not members of chords. Modulation. Course 1 includes all that is embraced in the study of harmony or thorough-bass. Two hours.
2. COUNTERPOINT.—Second year. The laws for the combination of independent parts. The five species of counterpoint in the ancient or strict style, and the modern or free style, are taught side by side. The higher development of counterpoint, viz.: canon and fugue, double counterpoint. Course 2 is prescribed for students who have satisfactorily passed 1. Applicants who can pass an examination in harmony may also be admitted to 2. Two hours.
3. FORM AND ORCHESTRATION.—Third Year. The laws of melody. The development of the Suite from Lyric Melodies. The Rondo in its several forms. The Sonata. The adaptation of these forms to one, two or more instruments. Orchestration. The compass, quality and manner of combining instruments. The forms of orchestral music. Course 3 is open to students who have taken 2, or to applicants who can pass an examination in Harmony and Counterpoint, and furnish a satisfactory composition in fugue form. Two hours.

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COURSES FOR TEACHERS.

In the year 1894 the University of Pennsylvania announced certain special courses for teachers, in the belief that there were many teachers and prospective teachers within reach of the University, who, having had a normal or high school training or the equivalent of such training, would avail themselves of such courses of study as would better fit them for practical and progressive work in teaching and superintending schools; provided such courses were offered at times that would not conflict with the duties of the class-room. In arranging these courses the University had in view the needs of a definite class in the community; and, in offering them, it does not enter into competition with existing institutions or with private teachers in the field of secondary instruction.

The courses at present embrace a wide range of topics, and aim to give a student, who is possessed of a good high school or normal school education or its equivalent, the opportunity of carrying on systematic work in one study or group of studies for periods of from two to four years.

No degree is offered, but satisfactory completion of any course will entitle the student to a certificate of study.

These courses do not lead up to graduate work, but persons who are not fully prepared to meet the requirements of the Faculty of Philosophy may in some cases supplement their preparation by the work here offered.

ADMISSION.

The admission of students to these courses is in charge of the following committee:

Professor MARTIN G. BRUMBAUGH, *Chairman.*
Professor FELIX E. SCHELLING,
Assistant Professor DANA C. MUNRO.

Teachers who can give satisfactory evidence of ability to pursue the work with profit may be admitted upon application, which should be made to the Chairman of the above-named committee.

All applications should be made by mail not later than September 23, 1899.

A member of the committee will be at the University, College Hall, on Friday, September 22, 1899, from 4 to 5 P. M. and on Saturday, September 23, from 9 A. M. until 3 P. M., to meet applicants and advise with them as to their work.

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All intending students are required to fill out the registration blank prescribed by the College for all matriculating students. This is done in the office of the Registrar, Room 103, College Hall. The Registrar will be in attendance at his office for this purpose on the dates and at the hours above specified.

All students will meet the instructors on Saturday, September 30, 1899, in the rooms and at the hours designated in the description of courses in this circular.

EXPENSES AND SESSION.

The fee is ten (10.00) dollars per annum for a course of one hour per week, and five (5.00) dollars additional for each additional hour in the same subject. A deposit to cover breakage may be required in the laboratory courses.

The session 1898-99 opened Saturday, October 1, 1898, and will close Saturday, May 27, 1899. Instruction is given on Saturdays, between the hours of 9 A. M. and 5 P. M., unless the class and the instructor agree upon some other more convenient time. Lectures will not be given upon those Saturdays which fall within the Thanksgiving, Christmas and Easter recesses of the College, nor upon legal holidays.

If less than six students apply for any course, or if the number of students in a course falls below six, the course may be discontinued.

Instruction is offered in the following subjects:

1. English Language, Composition and Literature.
2. Latin and Greek.
3. French.
4. German.
5. Philosophy.
6. Pedagogy.
7. Psychology.
8. American History.
9. Ancient, Mediæval and Modern History.
10. Political and Social Science.
11. Mathematics.
12. Physics.
13. Chemistry.
14. Astronomy.
15. Botany.
16. Zoölogy.

1. ENGLISH LANGUAGE, COMPOSITION AND LITERATURE.—Professor EASTON, Professor SCHELLING, Assistant Professor PENNIMAN, Dr. CHILD, Mr. QUINN and Mr. WEYGANDT. Three years; one hour per week.

Three objects are contemplated in the courses for teachers in these subjects: (1) a year's study in the English Language; (2) a

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year's course in Composition; (3) a brief general survey of the History of English Literature, with a more intensive study of such literary phenomena as the novel, the essay, the drama, and the poetry of this century. The courses in English Language and Composition may be taken in any year; those in Literature are graded to cover a period of three years.

(*a*) *English Language.*—Professor EASTON. *First and Second Terms.* 9-10, Room 316.

This course is primarily designed to aid those who are teaching English Grammar, by giving them an insight into the earlier forms of the language, with some knowledge of the principles that have governed its later development. Sweet's *Anglo-Saxon Primer* is used as a text-book. (Given yearly.)

(*b*) *Composition—English Prose.*—Mr. QUINN. *First and Second Terms.* 12 M. to 1, Room 218.

This course is intended to cultivate readiness and accuracy of perception in matters of thought and style. It involves the preparation of at least one paper each week on general or literary topics, with the discussion of these papers in class, as to points of style and expression, after due correction by the instructor. (Given yearly.)

First Year. (*c*) *The History of English Literature.*—Dr. CHILD and Mr. WEYGANDT. *First and Second Terms.* 10-11, Room 208.

Lectures and recitations; the period of preparation; Chaucer and the Chaucerians; the influences of the Renaissance and the New Learning; the ages of Milton, of Dryden and the period of repression; the rise of popular influence and the development of modern prose and poetry. Pancoast's *Introduction to English Literature* forms the basis of this course.

Second Year. (*d*) *The English Novel.*—Professor SCHELLING and Mr. WEYGANDT. *First Term.* 10-11, Room 218.

Lectures on the rise and development of the English novel from the early romances of the age of Elizabeth through Defoe and the classic novelists, Richardson, Fielding and Goldsmith, to the modern novel of Scott, Jane Austen, the Brontés, Dickens, Thackeray, Kingsley, George Eliot and Hawthorne.

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Second Year. (*e*) *Modern Essayists.*—Professor SCHELLING and Mr. QUINN. *Second Term.* 10-11, Room 218.

Lectures on the origin and growth of the review, the familiar and literary essay, from the foundation of the *Edinburgh Review,* 1802, to the present day. The reviewers, the familiar essayists, Charles Lamb, Leigh Hunt, and William Hazlitt; De Quincey, Macaulay and the earlier criticism; Carlyle, Emerson, Lowell, Matthew Arnold and the new criticism.

Third Year. (*f*) *The Drama of the Age of Elizabeth.*—Professor SCHELLING. *First Term.* 10-11, Room 218.

Lectures on the drama from the mystery and miracle plays to the closing of the theatres in 1642. The rise of the regular drama; Marlowe and the predecessors of Shakespeare, Shakespeare and his followers; the popular school of Dekker, and the learned school of Jonson.

Third Year. (*g*) *Modern Poets.*—Assistant Professor PENNIMAN. *Second Term.* 10-11, Room 218.

Lectures on the development of modern poetry from the death of Pope to the present day. The romantic movement; the school of nature; the poetry of revolt; Scott, Shelley, Byron, Wordsworth, Keats, Tennyson, Browning and Mr. Swinburne. English poetry in America.

Courses (*f*) and (*g*) are open only to students who have satisfactorily completed courses (*c*), (*d*) and (*e*).

All the courses in Literature involve occasional quizzes upon the lectures, a considerable amount of collateral reading, and the preparation of papers upon topics arising out of the lectures and out of the student's own reading.

2. LATIN AND GREEK.—Professor GIBBONS and Associate Professor GUDEMAN. Two courses are offered, each covering two years.

(*a*) *Beginners' Course.*—Professor GIBBONS. Two hours per week. 11-1, Room 212.

Lectures and recitations. Throughout the course special attention is given to the expressive reading of the Latin. Practical study of etymology, syntax and prose composition by collation of examples from text in hand.

First Year.—Cæsar's *Gallic War,* about thirty chapters of Book I. Literal translations.

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Second Year.—Cæsar continued for two or three months. Cicero or Vergil, with translation into good English, and with a more comprehensive study of Latin Grammar.

A few lectures on methods of studying Roman Literature, History and Antiquities, or (with Vergil) Mythology.

(*b*) *Advanced Course.*—Associate Professor GUDEMAN. One hour per week. 12-1, Room 208.

Selections from Latin Literature of the Empire: *Quintilian, Petronius* and *Pliny the Younger.*

3. FRENCH.—Dr. MOLENAER.

The following outline will give the general character, but the details will necessarily be determined largely by the amount of private work possible.

First Year.—Beginners' Course.—10-11, Room 312. Pronunciation; outline of grammar; study of verbs, including irregular verbs; reading.

Second Year.—11-12, Room 312. Grammar, forms and syntax; reading; contemporary literature; elements of composition.

4. GERMAN.—Mr. WESSELHOEFT. Four years.

The aim of the course is to enable students to read German at sight, and to interpret German masterpieces intelligently. The course will be so arranged that much of the work can be done as private reading.

First Year.—11-12, Room 304 *a.* Whitney's *Small German Grammar;* Whitney's *Introductory German Reader.*

Second Year.—12-1, Room 304 *b.*—Whitney's *German Grammar;* Heine's *Prose;* Goethe's *Sesenheim;* Heyse's *Die Blinden.*

Third Year.—Whitney's *German Grammar;* Harris' *German Composition;* Freytag's *Karl der Grosse; Reader in Scientific German.*

Fourth Year.—The selections read in the last year will bear upon subjects taught in the other departments, as philosophy and science: Fichte's *Reden an die Deutsche Nation;* Freytag's *Dr. Luther;* v. Sybel's *Erhebung Europas.*

5. PHILOSOPHY.—Assistant Professor NEWBOLD and Dr. SINGER. Room 201 (hour to be determined on consultation).

It is the aim of these courses to give some training in introspective analysis and in precision of thought, with a comprehension of the

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leading problems of Philosophy and Ethics. The details of the work will be arranged so far as possible to meet the demands that may arise.

(*a*) *Ethics.*—Assistant Professor NEWBOLD.—*First Term.* Preliminary analysis of the problems of Ethics. Lectures, followed by discussions and criticisms of the principles advanced by the instructor.

(*b*) *Logic.*—Dr. SINGER.—*Second Term.* Recitations in connection with a suitable text-book.

(*c*) *History of Philosophy.*—Assistant Professor NEWBOLD.—*Throughout the Year.* A rapid survey of the leading points in the history of Philosophy, with Weber's *History of Philosophy.*

6. PEDAGOGY.—Professor BRUMBAUGH. Two years; one hour per week. 9-10 A. M., Room 205.

This course is intended for those who possess the elementary facts of education, and who desire to prepare for more systematic work. Theoretic discussion will lead up to practical application of results.

First Year.—American Education. (Omitted in 1898-99.)

(*a*) A study of the distinctive features of our educational development. *First Term.*

(*b*) An extensive study of school management. *Second Term.*

Text-books recommended: White's *Pedagogy,* White's *School Management,* Tompkins' *School Management,* Brooks' *Normal Methods,* Arnold's *Waymarks for Teachers.*

Second Year.—(c) English Education.

Principles will be exhibited as presented in Spencer's *Education;* a consideration of methods and the practice of the best schools will follow. Besides Spencer, the works of Payne, Fitch, and Laurie, with Sharpless' *English Education,* will be used.

7. PSYCHOLOGY.—Assistant Professor WITMER, Dr. A. F. WITMER, Mr. CORNMAN and Mr. TWITMYER. Three years: one and one-half to two hours per week. Biological Laboratory, 9-11.

First Year.—Physiological Psychology.—Professor WITMER and Dr. A. F. WITMER. *First Term.* Two hours.

Lectures, demonstration and laboratory work on the anatomy of the brain and sense organs, and the functions of the central nervous system in relation to mental processes.

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The Psychology of Perception.—Professor WITMER and Mr. TWITMYER. *Second Term.* Two hours.

Introspective analysis and experimental study of the processes of perception.

Second Year.—Child Psychology.—Mr. CORNMAN. One and one-half hours; two terms.

Lectures and demonstrations on the methods and results of investigation into the conditions and processes of mental development. For teachers and others who have opportunities for observing children.

Third Year.—Advanced Seminary in Child Psychology.—Professor WITMER. One and one-half hours; two terms.

8. AMERICAN HISTORY.—Professor MCMASTER and Dr. AMES. Four years; two hours a week.

Political and Economic History.—Professor MCMASTER. 10-12. Room 206. Two hours; alternate weeks.

First Year.—(*a*) Settlement and boundaries of the original States; life in the Colonies. Causes of the Rebellion of the Colonies; life in the States during the War. The country under the Articles of Confederation. The people under the Constitution. The struggle for Neutrality (1793-1800). Spread of democratic ideas and institutions. Struggle for commercial independence. Change in economic conditions (1800-1815). State of the country during the war of 1812. New issues before the people. The breaking up of the Republican party. (Omitted in 1898-99.)

Second Year.—(*b*) The Middle Period (1820-1848). 10--12, Room 206. The westward movement of population. The rise of manufactures. The disorders of the currency. The question of the public lands, tariff, national bank, internal improvements. The steamboat, the canal and the railway, and the economic issues growing out of them. The struggle with Slavery. The compromise of 1850. A review of the socialistic, labor and educational questions, and foreign relations.

Third Year.—(*c*) Military operations of the war of the Rebellion. Reconstruction. Industrial development. (Omitted in 1898-99.)

Fourth Year.—(*d*) Special Studies in American History, State and National. (Omitted in 1898-99.)

(*d*) *Constitutional History.*—Dr. AMES. 10-12, Room 206. Two hours; alternate weeks.

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(*d*) Government in the United States: historical and analytical.

The evolution of the National, State and Local Governments. Discussion and preparation of papers on such topics as: The origin and administration of the colonial governments; the rise of the representative and bicameral systems; the origin of the different types of local government; religious toleration and the relation of Church and State; the transition from colonial to state government; the sources of the Federal Constitution; the franchise, the abolition of property qualification and the establishment of manhood suffrage; the initiative and referendum.

9. ROMAN, MEDIÆVAL AND MODERN HISTORY.—Professor CHEYNEY, Assistant Professor MUNRO and Dr. WHITCOMB. Two years; two hours per week.

An outline only is attempted; but special attention is given to the more significant periods. The lectures will be supplemented by prescribed reading and the preparation of occasional papers; one hour will be given to the lecture, and the other devoted to study of some particular related question, illustrations from original sources, by lantern views or class discussion.

First Year. (*a*) *Later Roman and Mediæval History, A. D. 300-1300.*—Assistant Professor MUNRO. *First twenty weeks.*

The Roman Empire under Constantine; the Barbarian invasions; conflict and gradual fusion of Roman and Teuton; the Church, its influence and corruption; the mediæval Empire; growth of the Papacy; the Investiture Strife; the Crusades; intellectual movements of the thirteenth century. (Omitted in 1898-99.)

(*b*) *Later Mediæval History, A. D. 1300-1500.*—Professor CHEYNEY. *Last twelve weeks.*

The Black Death and the Peasant Rebellion; the Hundred Years' War between England and France; the centralized monarchy in France, Spain and England; Germany under the Hapsburgs; the Popes at Avignon; the Great Schism; Wycliffe and Huss; the Church Councils; the Italian Renaissance. (Omitted in 1898-99.)

Second Year. (*c*) *Modern History, A. D. 1500-1872.*—Dr. WHITCOMB. 11-1, Room 320.

The Reformation in Germany and Switzerland; the wars of religion; the Ancien Régime in France, as typified by Louis XIV.;

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Prussia under Frederick the Great; the Revolution; the Napoleonic era; reform legislation in England in 1832; unification of Italy; the modern German Empire.

10. POLITICAL AND SOCIAL SCIENCE.—Assistant Professors ADAMS, SEAGER, LINDSAY and ROWE. Two years; one and one-half hours per week.

These are independent courses, but it is recommended that they be taken in the order here given.

First Year. (*a*) *Comparative Politics.*—Assistant Professor ADAMS. *First Term.*

The Governments of England, France and Germany. Such topics as the relation between the executive, legislative and judicial branches, the methods of nominating and electing officials, the influence of extra-constitutional forces on legislation. (Omitted in 1898-99.)

(*b*) *Municipal Government and Institutions.*—Assistant Professor ROWE. *Second Term.*

A study of the city and of city life, ancient, mediæval and modern. The rise of the modern city and present problems of the great centres of population: New York, Philadelphia, London, Berlin and Paris. (Omitted in 1898-99.)

Second Year. (*c*) *Descriptive Sociology.*—Assistant Professor LINDSAY. *First Term.* 11-12, Room 207.

It is the endeavor of this course to familiarize the student with the significant phenomena of the social population of the United States by means of lectures, required readings and short essays. 10-11, Room 209.

(*d*) *Political Economy.*—Assistant Professor SEAGER. *Second Term.* 11-12, Room 207.

This course is designed to familiarize students with the principles of Political Economy, and to suggest some of the applications of these principles to the economic questions of the day.

11. MATHEMATICS.—Assistant Professors FISHER and SCHWATT and Dr. HALLETT. Three years; one hour per week.

Each of the following courses occupies one year. Students may enter any courses for which their preparation fits them, and if

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there be any demand, several courses may be given simultaneously. All courses in Mathematics are given from 9-1.

(*a*) *Methods of Teaching Mathematics.*—Assistant Professor SCHWATT. Room 204.

Conception of numbers among savages and children; conception of numbers among the ancients and in modern times; amount and character of mathematical work in schools of different countries; methods of teaching arithmetic, algebra and trigonometry.

(*b*) *Algebra* (elementary course).—Assistant Professor SCHWATT. Room 204.

The conception of positive and negative numbers, the four fundamental operations, factoring, fractions, extraction of square and cube roots of numbers and of algebraical expressions, surds and imaginary quantities, simple equations and simultaneous equations of the first degree.

(*c*) *Algebra* (more advanced course).—Assistant Professor FISHER. Room 104.

Quadratic equations, ratio and proportion, series, theory of exponents and logarithms, permutations, combinations and simple probability, continued fractions, undetermined coefficients. This course requires a knowledge of course *b*.

(*d*) *Plane and Solid Geometry.*—Dr. HALLETT. Room 111.

Introduction; rectilinear figures, equality of polygons, circles, ratio and proportion, mensuration of plane figures, regular polygons and the circle; lines and planes in space, polyhedra; the cylinder, cone and sphere; similar solids.

(*e*) *Plane Trigonometry.*—Assistant Professor SCHWATT. Room 204.

The trigonometric functions, simplifications of trigonometric expressions, the solutions of right and oblique triangles. This course requires a knowledge of courses *b* and *d* (*Plane Geometry*).

(*f*) *Theory of Equations and Determinants.*—Assistant Professor FISHER. Room 104.

General theory of rational, integral algebraic expressions, special theory and solutions of the cubic and biquadratic, theory of determinants and of symmetric functions. This course requires a knowledge of courses *b* and *c*.

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(*g*) *Analytic Geometry.*—Assistant Professor FISHER. Room 104.

The fundamental properties of the conic sections, with an introduction to solid analytic geometry and higher plane curves. This course requires a knowledge of courses *b*, *c* and *e*.

(*h*) *Analytic Geometry* (advanced course).—Dr. HALLETT. Room 111.

General equation of second degree and properties of the conic, S=O. Systems of conics. Introduction to modern methods, three-line co-ordinates, etc.

(*i*) *Differential and Integral Calculus.*—Assistant Professor SCHWATT. Room 204.

The methods of differentiation and integration, maxima and minima, areas, volumes, etc. This course requires a knowledge of course *g*.

12. PHYSICS.—Assistant Professor GOODSPEED. Four years.

First Year.—Mass Physics and Molecular Physics. 9-10, Room 106.

Second Year.—Æther Physics. 9-10, Room 106.

These two years constitute a single course. The instruction will begin by informal conferences with experimental demonstrations. Algebra and Plane Trigonometry are required for admission to the course, and Analytical Geometry must be taken simultaneously with it. Barker's *Physics.*

Third and Fourth Years.—Experimental Course in Laboratory.

This course follows upon that of the first and second years. Ames & Bliss' *Experiments in Physics.*

13. CHEMISTRY.—Professor SMITH, Dr. FLECK, Dr. SHINN, Dr. MOYER, Mr. TAGGART, Mr. WALLACE. Four years; three hours per week. Chemical Laboratory, 9-12.

First Year.—General Chemistry. Lectures and practical work. Properties of elements and compounds. Determination of the weight of a liter of various elementary and compound gases, of the specific heat of several metals, of the atomic weight of one or two metals.

Second Year.—Reactions of the metals; preparation of interesting and important salts.

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Third Year.—Quantitative analysis of foods, salts and technical products; inorganic preparations.

Fourth Year.—Organic Chemistry. Lectures, preparation of type compounds. Determinations of vapor density and molecular weight. History of the development of chemical theory.

14. ASTRONOMY.—Mr. ERIC DOOLITTLE. 12-1, Room 109.

General outline of Descriptive Astronomy. This course consists of lectures in connection with Howe's *Treatise on Astronomy,* and will cover the principal facts of the subject as there presented.

15. BOTANY.—Professor MACFARLANE, Dr. HARSHBERGER, Dr. PORTER. Two years; three hours per week. Biological Laboratory, 9-12.

First Year. (*a*) *Introductory Course.*

Flowering plants, their structure, functions and affinities. Lectures, illustrated by fresh and preserved specimens, diagrams, models and preparations. Laboratory work by the student in plant physiology and morphology.

Second Year. (*b*) *Cryptogams.—First Term.*

Lectures and laboratory work upon the leading groups. (Omitted in 1898-99.)

(*c*) *Phanerogams.—Second Term.*

The systematic relationships of the important orders will be studied. (Omitted in 1898-99.)

16. ZOÖLOGY.—Professor CONKLIN, Dr. MOORE and Dr. CALVERT. Two years; three hours per week. Biological Laboratory, 9-12.

First Year.—(*a*) A study of the structure, life-history and classification of the different groups of the animal kingdom, typical examples of both vertebrates and invertebrates being selected for study in the laboratory. Drs. MOORE and CALVERT, assisted by demonstrators. (Omitted in 1898-99.)

Second Year.—(*b*) A course on the subjects of General Embryology and Physiology, open only to those who have taken (*a*) or its equivalent. Professor CONKLIN and Dr. CALVERT, assisted by demonstrators.

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DEPARTMENT OF PHILOSOPHY.

FACULTY.

CHARLES C. HARRISON, LL. D., Provost.

E. OTIS KENDALL, LL. D., Professor of Mathematics.

GEORGE F. BARKER, M. D., Sc. D., LL. D., Professor of Physics.

MORTON W. EASTON, PH. D., Professor of English and Comparative Philology.

JOHN BACH McMASTER, A. M., LITT. D., Professor of American History.

HORACE JAYNE, M. D., PH. D., Professor of Zoölogy.

*REV. GEORGE S. FULLERTON, PH. D., Professor of Intellectual and Moral Philosophy.

DANIEL G. BRINTON, M. D., Sc. D., Professor of American Archæology and Linguistics.

REV. HERMANN V. HILPRECHT, PH. D., D. D., LL. D., Professor of Assyrian and Comparative Semitic Philology.

MORRIS JASTROW, JR., PH. D., Professor of Semitic Languages.

WILLIAM A. LAMBERTON, A. M., LITT. D., Professor of the Greek Language and Literature.

SIMON N. PATTEN, PH. D., Professor of Political Economy.

FELIX E. SCHELLING, A. M., PH. D., Professor of English Literature.

EDGAR F. SMITH, PH. D., Professor of Chemistry.

ARTHUR W. GOODSPEED, PH. D., Assistant Professor of Physics.

EDWIN S. CRAWLEY, PH. D., Assistant Professor of Mathematics.

GEORGE E. FISHER, A. M., PH. D., Assistant Professor of Mathematics.

EDWARD P. CHEYNEY, A. M., Professor of European History.

ROLAND P. FALKNER, PH. D., Associate Professor of Statistics.

HUGO A. RENNERT, PH. D., Professor of Romanic Languages and Literatures.

JOHN M. MACFARLANE, D. Sc., Professor of Botany.

ALFRED GUDEMAN, PH. D., Associate Professor of Classical Philology.

MARTIN G. BRUMBAUGH, PH. D., Professor of Pedagogy.

* Absent on leave.

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AMOS P. BROWN, PH. D., Assistant Professor of Mineralogy and Geology.

LIGHTNER WITMER, PH. D., Assistant Professor of Psychology.

WILLIAM ROMAINE NEWBOLD, PH. D., Assistant Professor of Philosophy, and DEAN OF THE FACULTY.

JOHN QUINCY ADAMS, PH. D., Assistant Professor of Political Science.

CHARLES DOOLITTLE, C. E., Sc. D., Professor of Mathematics and Astronomy.

MARION D. LEARNED, PH. D., Professor of the Germanic Languages and Literatures.

EDWIN GRANT CONKLIN, PH. D., Professor of Comparative Embryology.

JOSIAH H. PENNIMAN, PH. D., Assistant Professor of English Literature.

DANA C. MUNRO, A. M., Assistant Professor of History.

EMORY R. JOHNSON, PH. D., Assistant Professor of Transportation and Commerce.

LEO S. ROWE, PH. D., Assistant Professor of Political Science.

HENRY R. SEAGER, PH. D., Assistant Professor of Political Economy.

SAMUEL McC. LINDSAY, PH. D., Assistant Professor of Sociology.

ISAAC J. SCHWATT, PH. D., Assistant Professor of Mathematics.

LECTURERS.

DANIEL B. SHUMWAY, B. S., PH. D., Germanic Languages and Literatures.

J. PERCY MOORE, PH. D., Zoölogy.

JOHN W. HARSHBERGER, PH. D., Botany, General Biology and Zoölogy.

PHILIP P. CALVERT, PH. D., Zoölogy.

HERMANN FLECK, PH. D., Chemistry.

HORACE CLARK RICHARDS, PH. D., Physics.

GEORGE H. HALLETT, A. M., PH. D., Mathematics.

HOBART C. PORTER, PH. D., Botany.

WILLIAM N. BATES, PH. D., Greek.

JAMES T. YOUNG, PH. D., Administration.

ERIC DOOLITTLE, C. E., Astronomy.

CLARENCE G. CHILD, PH. D., English.

J. BIRD MOYER, PH. D., Chemistry.

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MERRICK WHITCOMB, PH. D., European History.
HERMAN V. AMES, PH. D., American Constitutional History.
THOMAS H. MONTGOMERY, JR., PH. D., Invertebrate Zoölogy.
EDGAR A. SINGER, JR., PH. D., Philosophy.
OWEN LOUIS SHINN, PH. D., Chemistry.
FREDERICK EHRENFELD, PH. D., Mineralogy and Geology.

EXECUTIVE COMMITTEE.*

WILLIAM ROMAINE NEWBOLD, *Dean*, Chairman *ex-officio;* Professor LAMBERTON, Professor SMITH, Professor PATTEN, Professor MACFARLANE, PROFESSOR LEARNED.

The Department of Philosophy offers advanced instruction in the various branches of Literature and Science. The instruction is intended primarily for persons who have profited by the advantages of a full college course, and who are desirous of continuing their studies upon lines more strictly defined and specialized. Others, however, may be admitted to study in the Department, under the conditions hereinafter specified.

The session of 1898-99 began on Saturday, October 1, 1898.

ARRANGEMENT OF COURSES.

The courses of instruction offered in this Department are arranged under the sixteen following groups:

1. Semitic Languages.
2. American Archæology and Languages.
3. Indo-European Philology.
4. Classical Languages.
5. Germanic Languages.
6. Romanic Languages.
7. English.
8. Philosophy, Ethics, Psychology and Pedagogy.
9. History.
10. Economics, Politics, Sociology and Statistics
11. Mathematics.
12. Astronomy.
13. Physics.
14. Chemistry.
15. Botany and Zoölogy.
16. Geology and Mineralogy.

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* For 1898-99.

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All persons authorized to give instruction within a group constitute the Group Committee. To the several Group Committees are entrusted the arrangement of their respective courses, and the oversight of students taking majors within the group.

The instruction given within a group is classified under the headings, "lecture courses," "seminary courses," and "laboratory courses."

In stating the minimum requirements for residence and degrees a "standard" course is used; this is a lecture course of one hour a week for one academic year. The lecture courses as actually given will be either multiples or fractional parts of this standard. The ratio of value of the several seminary and laboratory courses to the standard is variable, and will be set in each case by the Group Committee.

ADMISSION.

Students desiring to enter this Department must present themselves in person to the Dean.

Any person holding a Bachelor's degree in Arts, Letters, Philosophy, Pure or Applied Science, granted by the University of Pennsylvania, or by any college or university whose degrees are recognized by this University, will be admitted as a regular student by the Dean, provided he be found prepared to undertake the graduate work selected. This does not include degrees in Law, Music, Theology, Medicine, Dentistry, Veterinary Medicine or Pharmacy. Admission to the Graduate School does not imply candidacy for a degree.

Students already registered as candidates for a degree in other Departments of the University are allowed to pursue courses in this Department, and regular students of this Department are allowed to pursue courses in other Departments, by the concurrent action of the respective Deans.

After admission, each student will be furnished with a matriculation card; no student who cannot show his matriculation card will be allowed to take any course. These cards are good only for the year in which they are issued, and must be renewed from year to year. For such renewal, personal application must be made to the Dean.

Upon application to the Dean, any person may, with the consent of the officer of instruction, be admitted as an auditor to any course. Auditors will not be required to take part in the regular work or to pass examinations, and will not, as a rule, receive credit for their work.

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CANDIDACY.

Graduate students thus regularly admitted may be accepted by the Executive Committee as candidates for the degrees of Master of Arts or Master of Science, if application be made at least six months before the examination for the degree.

Graduate students thus regularly admitted who wish to become candidates for the degree of Doctor of Philosophy must make application to the Executive Committee at least one academic year before the examination for the degree.

The application must be indorsed by the chairman of the Group Committee in which the applicant proposes to take his major subject and shall contain:

(*a*) Certificates setting forth that he possesses a good reading knowledge of two European languages besides English one of which must be a modern tongue. These certificates shall be signed by examiners appointed by the chairmen of the corresponding linguistic groups.

(*b*) A statement of his previous work, both undergraduate and graduate, accompanied by any diploma or certificate which he may possess, and also any papers which he may have written and suitable evidence of any other original work which he may have done.

RESIDENCE.

All candidates for higher degrees are required to spend at least one year in residence at this University. To be construed in residence at this University, a student must pursue not less than six standard lecture courses or their equivalent, simultaneously. Work done at other universities may be accepted by the several Group Committees in lieu of a part of the work required for a degree.

When only one year is spent in residence at this University, it must be the last year of the student's course.

Leave of absence is granted by the Executive Committee under the following circumstances only:

(*a*) To students who have completed the minimum required amount of resident work and desire to prepare the thesis *in absentia* under conditions satisfactory to the committee.

(*b*) To students who are temporarily working in residence at other Universities, with the intention of returning to this University to take their degrees.

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DEGREES.

The degrees conferred in the Faculty of Philosophy are Doctor of Philosophy, (Ph. D.), Master of Arts, (A. M.), and Master of Science, (M. S.).

The right to recommend a candidate to the Board of Trustees for a higher degree is vested in a Board of Examiners, consisting of the Dean and three members of the Faculty, representing those branches of study which the candidate has been pursuing. Before a student can offer himself for examination, he must present to the Dean suitable written certificates from the Group Committees under whose supervision his work has been prosecuted, setting forth that he has not only complied with all conditions prescribed by the rules, but is also in the judgment of those committees fitted by his ability and attainments to receive the degree in question. *No student can acquire a right to such recommendation merely by attending lectures, passing examinations, or by compliance with any prescribed conditions whatever.* The requirements for degrees hereinafter specified must therefore be regarded as minimum requirements only, and it remains within the power of any Group Committee to refuse to admit any student to the examination for a higher degree. All degrees are conferred at the annual Commencement in June.

THE MASTER'S DEGREE.

The work for the Master's degree will occupy the student's undivided time for at least one academic year. The candidate will be allowed to elect any courses offered in this Department. subject to the consent of the Dean. He will be required to complete not less than twelve standard courses, or their equivalent, to the satisfaction of the committees offering them, but need not pursue them simultaneously. He must then pass a private written examination under the direction of his instructors, and a public oral examination in the presence of the Board of Examiners, and of such members of the Faculty as desire to attend.

THE DOCTOR'S DEGREE.

The degree of Doctor of Philosophy is conferred solely in recognition of marked ability and high attainments in some definite branch of learning.

The degree will in no case be conferred before the expiration of two years after the date of the candidate's baccalaureate degree, nor upon a candidate who has not completed twenty-four standard

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courses or their equivalent. A student of ability, who has already had a good undergraduate course and pursues in graduate work the same topics to which he devoted special attention as an undergraduate, will usually be able to attain his degree in three years; but students whose college training has been in any respect defective, or who cannot devote their undivided attention to the work, will require a longer period.

The candidate for the Doctor's degree must, upon entering the Department, elect the group within which he intends to do the greater part of his work, and will then pass under the jurisdiction of the committee in charge of that group. He must designate, with the consent of the committee, three branches of learning in which he desires to become proficient. One of these, which shall be known as his principal or major subject, must lie within the group; although the Group Committee may direct him to courses given in other groups, and may allow them to be accounted part of the major work. The other two shall be known as his subordinate or minor subjects. It is recommended that at least one minor be taken outside the group in which the major lies. In every case the minor subjects shall be so related to the major as to conduce to some recognized and approved end. The work done for the completion of the minor subjects must comprise not less than eight and not more than twelve standard courses or their equivalent.

Every candidate for the Doctor's degree must possess a good reading knowledge of those languages which are judged by the committee in charge of the major essential to the prosecution of his major work, besides a knowledge of two European languages as required by the rules.

He must also present a thesis upon some topic in the line of his major subject, showing high attainment or power of original and independent research. This thesis must be presented to and approved by the Group Committee in which his major lies before he can be admitted to the examinations.

The thesis must be typewritten or printed, unless, upon recommendation of the committee in charge, the Dean authorize the acceptance of a written thesis. The committee may require the thesis to be printed before recommending the candidate for the degree. If the thesis is written or typewritten, one copy must be deposited in the Library of the University before the student can be recommended for his degree; if printed, fifty copies must be deposited.

The candidate for the Doctor's degree must pass a private written examination conducted by his instructors, and a public oral exami-

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nation. The final examination is conducted by a Board of Examiners, in the presence of such members of the Faculty as may desire to attend. The Board of Examiners will consist of the Dean and three members of the Faculty appointed by the Dean, and representing the candidate's major and minor subjects respectively.

FEES AND DEPOSITS.

TUITION FEES.—For all candidates for a higher degree the tuition fee is one hundred (100.00) dollars per annum. The graduation fee is twenty-five (25.00) dollars. All financial obligations to the University must be discharged prior to Commencement Day in each year.

The fees of students who are not yet candidates for a degree, and of auditors, are determined by the number of courses taken. The fee for a lecture or seminary course is found by multiplying ten dollars by the number of hours of instruction offered a week throughout the year, and adding five dollars to this product. The fee for a laboratory course is found by multiplying five dollars by the number of hours spent in the laboratory a week throughout the year, and adding five dollars to the product. If several courses be taken with the same instructor, the five dollars is added only once.

LABORATORY FEES.—All candidates for a higher degree who are taking work in the four laboratories of (1) Chemistry, (2) Physics, (3) Geology and Mineralogy, (4) Botany and Zoölogy, will pay, in addition to the tuition fee, a laboratory fee of twenty (20.00) dollars per annum for the laboratory in which the greatest amount of work is taken, and ten (10.00) dollars per annum for each additional laboratory.

All students not yet candidates for a degree, and all auditors, if less than four hours of laboratory work a week throughout the year is taken, will pay a laboratory fee of five (5.00) dollars an hour a week per annum. If four or more hours are taken in any single laboratory, the fee for that laboratory will be twenty (20.00) dollars per annum.

Fees for the first term are due October 1, 1898. To any fee not paid before November 1, two and a half (2.50) dollars will be added. Fees for the second term are due February 1, 1899, and to any fee not paid before March 1, two and a half (2.50) dollars will be added. A student who has not paid his tuition fees in full can receive no credit for his work, and cannot be admitted to examinations.

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All University Fellows and Scholars are exempted from the payment of tuition fees, but must pay laboratory and graduation fees and must make the usual deposits.

Senior Fellows, Honorary Fellows and Instructors of the University are exempt from the payment of all fees, and will not be required to make deposits.

Any regular student who shall avow and give evidence of his inability, by reason of poverty, to pay the usual tuition fees or any part of them, may be allowed, upon recommendation of the Executive Committee, to deposit with the Treasurer of the University security acceptable to the Provost for the amount to which he becomes indebted, and an agreement to pay the said amount to the University at a fixed time, which must be within five years of the date upon which he severs his connection with the University, whether by taking a degree or otherwise. The length of time and terms of payment will be determined in each case with reference to its circumstances.

DEPOSITS.—Students taking laboratory courses must make a deposit with the Registrar when matriculating, to cover breakage and other damage. For the laboratories of Chemistry and Physics the deposit is twenty (20.00) dollars. For the laboratories of Geology and Mineralogy, Botany and Zoölogy, the deposit is ten (10.00) dollars. If courses are taken in two or more laboratories, the maximum deposit will be twenty (20.00) dollars. After deducting charges for breakage and other damage, the balance remaining will be repaid at the close of the academic year. Should the damage caused by any student be found in the course of the year to exceed the amount of this deposit, he must make a second deposit equal in amount to the first with the Registrar.

THE GEORGE LEIB HARRISON FOUNDATION.

Through the generosity of the Provost, a permanent fund of Five Hundred Thousand dollars has been presented to the University. This fund is known as the GEORGE LEIB HARRISON Foundation. The income will be applied to the establishment of Fellowships and Scholarships, to the support of courses of lectures by men of scientific eminence, and to such other purposes as may promote the cause of advanced scientific study and research.

Under the provisions of this Foundation, there have been instituted in the Department of Philosophy eight scholarships, nineteen fellowships and five senior fellowships; men only being eligible.

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SCHOLARSHIPS.

These are assigned to the following groups of subjects:

1. History and Economics.
2. Classical Languages.
3. Modern Languages (German and French).
4. History and Philosophy.
5. Mathematics and Physics.
6. Chemistry and Physics.
7. Biology and Chemistry.
8. English and History.

They are open to those who have taken a baccalaureate degree in the University of Pennsylvania in the courses in Arts and Science, and who have been resident students of the University for at least two years prior to graduation. They are not renewable. The holder is required to continue in resident graduate study at the University for one full academic year; he will receive free tuition from the University, and $100 from the Foundation.

FELLOWSHIPS.*

The Fellowships are assigned severally to the following subjects:

1. Classical Languages.
2. Semitic Languages.
3. Germanic Languages.
4. Romanic Languages.
5. English.
6. American History.
7. European History.
8. Political Science.
9. Economics.
10. Philosophy.
11. Pedagogy.
12. Chemistry.
13. Biology.
14. Mathematics and Astronomy.

In addition to the fourteen Fellowships above named, five other Fellowships have been established upon the George Leib Harrison Foundation, the title subjects of which are not permanently specified. They will be assigned by the Corporation from year to year to the several groups, upon the recommendation of the Executive Committee of the Department.

For the current year they have been assigned as follows:

15. Germanic Languages.
16. Indo-European Philology.
17. American History.
18. Sociology.
19. Mathematics.

* For Fellowships open to women see p. 222.

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The income of a Fellowship is $500 per annum. The additional sum of $100 per annum is reserved in connection with each George Leib Harrison Fellowship, and is applied to the purchase of books or apparatus which will increase the equipment of the Department. No student can hold a Fellowship for more than two years.

The applicant must hold a baccalaureate degree of non-technical character; must have had at least one year of satisfactory graduate work; must have a good reading knowledge of French and German; and must not already have taken the Doctor's degree. Certificates establishing these facts must accompany applications.

A Fellow must be entered in the Department of Philosophy as a candidate for the degree of Ph. D. His major subject must be the title subject of his Fellowship; if the title of the Fellowship includes more than one subject, the major and one minor must be chosen from them. He will be required to devote his whole time to the prosecution of his studies in residence at the University; and no teaching, or other outside work, will be permitted. But in every group, to the Fellows working in that group, there will be entrusted by the Chairman the duty of keeping a record of current publications in the title subjects of their Fellowships. They will be required to make a written report on the first day of every month from November 1 to June 1 inclusive, to the Chairmen of the several Group Committees.

SENIOR FELLOWSHIPS.

The Senior Fellowships, five in number, are not designated by subjects. They are open only to men who have taken the degree of Ph. D. at the University of Pennsylvania. Applicants must specify what studies they intend to pursue.

A Senior Fellow will be required to devote himself to some work of original research in the line of his specified subject. He will also give such instruction in his subject as may from time to time be required by the head of his Department, to a maximum of four hours a week. No other teaching or occupation will be permitted. Residence is imperative. No student can hold a Senior Fellowship for more than three years.

The income of a Senior Fellowship is $800 per annum.

OTHER FELLOWSHIPS AND SCHOLARSHIPS.

THE HECTOR TYNDALE FELLOWSHIP IN PHYSICS was endowed in 1885 by Professor John Tyndall, and is awarded from year to year

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to a baccalaureate graduate who proposes to pursue advanced studies in Physics. The incumbent may be twice reappointed, and may, with the sanction of the Faculty, pursue his studies at any university here or abroad. The income of the Fellowship is $600.

UNIVERSITY SCHOLARSHIPS.

In addition to the above Scholarships and Fellowships, there have been established by the Corporation thirty University Scholarships, ten of which are open to competition in 1897-98, twenty in 1898-99, thirty in 1899-1900 and thereafter. Appointment to these will be for the term of one year. They will entitle the holder to free tuition only, and will be awarded mainly upon the basis of scholarship. Other considerations, however, being equal, preference will be given to students standing in need of aid. Holders may be twice reappointed, and will be allowed to do outside work only with the express permission of the Executive Committee. Both men and women are eligible.

HONORARY FELLOWS.

Persons who have taken the degree of Ph. D. from some university whose degrees are recognized by this University as equivalent to its own may be accorded the title of Honorary Fellow. The Honorary Fellow will be allowed the privilege of attending lectures and of making use of laboratories without the payment of tuition or laboratory fees. He will, however, be required to give instruction, to render other assistance to the head of the Department in which he is working, to prepare and publish some work which will be an actual contribution to existing knowledge, or in some other way to make suitable return to the University for the privilege granted. The precise character of the services which he expects to render must be specified in the application.

Applications for Fellowships and Scholarships for the year 1899-1900 should be made prior to March 1, 1899.

For blank forms of application and for all further information concerning the Department of Philosophy, address

WILLIAM ROMAINE NEWBOLD, Dean,
College Hall, University of Pennsylvania.

The Dean is in his office, 103 College Hall, daily, from 10 A. M. to 12 M.

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COURSES OF INSTRUCTION.

The major subjects offered by each Group Committee represent those divisions of topics which are commonly recognized. Other divisions may be allowed in special cases. In electing a major, a student merely designates that division of the field in which he desires to become especially proficient: his further work in that field is not determined by any prearranged system of lecture courses, but will be directed by the Group Committee in such manner as seems best to conduce to the student's progress.

In specifying the following minor courses, the several committees do not exclude the possibility of a student's arranging other minors for himself by a different combination of courses. It is believed, however, that the minors here specified will meet the needs of most students, and that their distinct formulation will aid students in arranging their work intelligently.

Except where the contrary is stated, one hour lecture or seminary courses, or two hour laboratory courses extending over a year; and two hour lecture or seminary courses, or four hour laboratory courses extending over a term, are accounted standard courses.

I. SEMITIC LANGUAGES.

Group Committee: Professor HILPRECHT, *Chairman.* Professor JASTROW.

Majors—Assyrian, Arabic, Ethiopic, Hebrew, Syriac.

Minors—Students electing a minor in the group must confine their work to one of the above-mentioned languages.

COMPARATIVE SEMITIC PHILOLOGY.

Professor HILPRECHT. Hours per week.

1. Semitic Seminary (*Second Term*) (Unit Course)..... 1
   Verb formation in Assyrian, Hebrew and Syriac.
   A good knowledge of the three languages will be required.

Professor JASTROW.

2. Introduction to the study of the Semitic Languages (*First Term*) 1
   Lectures on the nature and classification of the Semitic Languages, the alphabet, the Semitic Literatures and generial survey of the History of the Semites.

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ASSYRIAN.

Professor HILPRECHT. Hours per week.

3. Assyrian Grammar..... 2
For beginners and students of Comparative Semitic Grammar. Exercises in reading cuneiform writing, and interpretation of easy historical texts. Delitzsch, *Assyrian Grammar;* and Meissner, *Assyrisch-Babylonische Chrestomathie.*

4. Interpretation of Assyrian Historical and Babylonian Building Inscriptions..... 2
Rawlinson, *Cuneiform Inscriptions of Western Asia,* Vol. I; Hilprecht, *Old Babylonian Inscriptions,* parts 1 and 2.

5. Neo-Babylonian Contract Tablets from Archives of Nippur (*One Term*)..... 1
Hilprecht & Clay, *Tablets dated in the reign of Artaxerxes I.* (Vol. IX of Hilprecht, *The Babylonian Expedition of the University of Pennsylvania,* Series A).

7. Assyrian Seminary (*One Term*) (Unit Course)..... 1
Exercises in deciphering and copying original Babylonian documents; determining the age of cuneiform tablets. For advanced students only.

SUMERIAN.

Professor HILPRECHT.

7. Sumerian Grammar, with a survey of the history of the Sumerian Question (*Second Term*) (Unit Course)..... 1
Hommel, *Sumerische Lesestücke;* Weissbach, *Die Sumerische Frage.*

SYRIAC.

Professor HILPRECHT.

8. Syriac Grammar (*One Term*)..... 1
Nöldeke, *Syrische Grammatik.*

HEBREW.

Professor HILPRECHT.

9. Interpretation of Isaiah, Chapters I-X. (*One Term*)..... 1
Philological, historical, theological.
Open to theological students and ministers of all denominations. The rich Archæological Museum will be used to illustrate the life of the people, and to furnish the historical background of the period treated.

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Professor JASTROW.

Hours per week

10. Interpretation of the Books of Ecclesiastes and Proverbs.. 1
Critical study, with themes.

11. The Book of Leviticus..... 1
Special attention will be paid to grammatical and archæological questions.

12. Reading at Sight of selected chapters from the historical portions of the Old Testament, with exercises in translation from English into Hebrew..... 1

13. Lectures on the Morphology and Syntax of the Hebrew Language 1

14. Rabbinical Literature..... 1
The Mishnaic treatises *Pirkê Abôth* (*Ethics of the Fathers*) *Taanith* and *Shabbâth.*

ARAMAIC.

Professor JASTROW.

16. Elements of the Grammar: Readings from Daniel and Ezra 1
Constant comparison between Hebrew and Aramaic will be made. All the Aramaic portions of the Old Testament will be read. Strack, *Abriss des Biblisch-Aramäischen.*

ARABIC.

Professor JASTROW.

17. Elements of Arabic Grammar..... 2
Socin, *Arabic Grammar,* supplemented by lectures on the grammatical features of the language.

18. Selections from Brünnow, *Arabic Chrestomathy,* and from the *Beirut Chrestomathy*..... 1

19. El-Bokhâri's collection of traditions, bearing on the life of Mohammed. (Edition Krehl.) Part I (*First Term*)..... 1

20. Selections from the Annals of Tabari. (*Second Term*).... 1
Courses 19 and 20 are intended for such as desire a more intimate knowledge of Arabic.

SEMITIC EPIGRAPHY.

Professor JASTROW.

21. Introduction to the study of Semitic Epigraphy (*First Term*) 1

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Hours per week

22. South Arabic Inscriptions (*Second Term*)..... 1
Hommel, *Süd-Arabische Chrestomathie.*

NOTE.—The courses offered in Semitic languages every year include grammar, interpretation of the different branches of literature, paleography and archæology. Courses on the life, customs, religion and history of the Semitic nations will be given at certain intervals.

II. AMERICAN ARCHÆOLOGY AND LANGUAGES.

Professor BRINTON.

Majors—1. Nahuatl Language and Literature.
2. Mayan and Mexican Hieroglyphics.
3. North American Archæology.

Minors—1. General Structure of American Languages.
2. Outlines of American Archæology.
3. Antiquities of the Eastern United States.

The instruction given in this group will be in large measure based upon the unusually rich collections of the University Museum, and will be arranged with reference to the preparation and aims of applicants.

III. INDO-EUROPEAN PHILOLOGY.

Professor EASTON.

Majors—Sanskrit and Indo-European Philology.
Minors—Sanskrit. Courses 2 and 3.

2. Elementary Sanskrit (*Two Years*)..... 1
Whitney, *Grammar;* Lanman, *Reader.*

3. Advanced Sanskrit (*Two Years*)..... 2
Veda. Çakuntala.

5. Sanskrit Philosophy..... 3
The Upanishads, the Sankhya Karika, and the Kapila Sutras.

4. Phonetics. Lectures..... 1

These courses are planned with reference to the special purpose of the student. General linguistics, phonetics and a varying amount of Sanskrit form the basis; an outline of

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the growth of Indo-European forms is presented, while special attention is given, in certain cases, to the morphology of the languages to which the student particularly devotes himself. In the major course this study is carried into greater detail, and more Sanskrit is required. A course in Greek, equivalent to a minor, is required when Comparative Philology is taken as a major.

Course 4 deals with the general principles of Phonetics, and is intended for all students of the languages.

IV. CLASSICAL LANGUAGES.

Professor LAMBERTON, *Chairman.*

Associate Professor GUDEMAN, Dr. BATES.

Majors—Greek, Latin.

Minors—Six courses or their equivalent, in either Greek or Latin.

The following announcements embrace those courses only which will be given in the academic year 1898-99. The authors and works read in the group vary from year to year in such wise as to enable each student taking the work as a major to cover the principal periods and spheres of the literature.

A. GREEK.

Professor LAMBERTON. Hours per week.

1. Aristotle's *Politics*..... 2

A philological and historical study. Written work on special topics.

2. Sophocles' *Electra*..... 2

Dr. BATES

3. Pausanias' *Periegesis*, with a special study of the Monuments..... 2

Considerable portions will be read in the light of recent archæological investigation. Each student will present a paper giving the results of his investigation of some subject connected with the course.

Text-books: Schubart, *Pausaniae Descriptio Graeciae*, 2 vols. (Teubner.)

B. LATIN.

Associate Professor GUDEMAN.

1. Tacitus' *Annals*..... 2

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Hours per week.

Special attention will be given to the rhetoric and style of Tacitus, to the sources of his information and to his method of using them. Seminary.

2. History of the Latin Language. Lectures..... 1
3. History of Alexandrian Poetry. Lectures (*One Term*)... 1

With special reference to Catullus, Propertius, Tibullus, Vergil and Ovid.

4. Cicero's *Orator*. Lectures (*One Term*)..... 1

JOURNAL CLUB.—This club, composed of the members of the Seminary, will meet once a month for the discussion of notable contributions in the field of Latin Literature.

V. GERMANIC LANGUAGES.

Professor LEARNED, *Chairman*. Dr. SHUMWAY.

Majors—Germanic Literature. Germanic Philology.

Minors—1. For students of Germanics. Course 2.
2. For students of Mediæval History. Courses 5 *ab*, (or 5 *ac*, or 5 *bc*,) and 4.
3. For students of English or Romanic Literature. Six courses to be chosen from, 1, 2, 4, 5, 6, 7, 8.
4. For students of English or Romanic Philology. Six courses to be chosen from 2, 3, 4, 5, 6, 9, 10, 11.

The graduate courses in Germanic Philology are grouped in cycles of three years, so as to enable the student to pursue his studies in all the representative periods of Germanic languages and literatures—Gothic, Old High German, Middle High German, New High German (including the sixteenth, seventeenth, eighteenth and nineteenth centuries). During the cycle of three years at least one seminary course will be offered in each of the most important periods.

Professor LEARNED.

1. Germanic Seminary..... 3
   (*a*) Goethe's *Faust* (*First Term*).
   (*b*) German Minnesong (*Second Term*).
2. Old Norse Poetry (*Two Years*)..... 1½
   (*a*) Icelandic Prose Sagas. (Omitted in 1898-99.)
   (*b*) Elder Edda.

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Dr. SHUMWAY.

Hours per week.

3. Gothic 1
4. Middle High German (*First Term*)..... 2

Professor LEARNED and Dr. SHUMWAY.

5. Sixteenth Century German 2
   (*a*) First year (1897-98): Sebastian Brant, *Narrenschiff* (Dr. Shumway); Hans Sachs, *Fastnachtspiele Fabeln und Schwänke* (Professor Learned).
   (*b*) Second year (1898-99): Thomas Murner (Dr. Shumway); Ulrich Von Hutten (Professor Learned).
   (*c*) Third year (1899-1900): Johann Fischart (Dr. Shumway); Martin Luther (Professor Learned).

Dr. SHUMWAY.

6. Seventeenth Century German..... 2

Professor LEARNED.

7. The German Ballad (Volkslied) (*One Term*)..... 2
8. German Literature in America..... 1

   The literary relation of Germany and America in the nineteenth century, with special reference to the influence of German literature on Anglo-American literature. Once in three years.

Dr. SHUMWAY.

9. Germanic Phonology. Comparative Germanic Phonology.. 1
10. Comparative German Syntax..... 1

Professor LEARNED.

11. History of the German Languages..... 1
13. The Romantic School..... 2
12. THE GERMANIC ASSOCIATION.—This association, formed of the instructors and advanced graduate students, is an essential part of the work in German. An original paper will be presented at each meeting. This may be followed by minor communications.

NOTE.—German Conversation. Students who elect German as a major, are required to join the class in German conversation, unless they already have a satisfactory command of colloquial German.

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VI. ROMANIC LANGUAGES.

Hours per week.

Professor RENNERT.

Majors—Old French and Provençal; Italian and Provençal; Italian and Spanish; Spanish and Portuguese.

Minors—Any suitable arrangement of courses may be elected as a minor.

1. Old French..... 2
2. Old Provencal..... 1
4. Elementary Italian..... 2
3. Italian. Petrarch, Sonnets..... 1
5. Old Spanish..... 1
6. Spanish Drama of the seventeenth century..... 1
7. Portuguese. Episodes from Camoens, *Os Lusiadas* and the Sonnets and Lyrics..... 1

VII. ENGLISH.

Professor SCHELLING, *Chairman;* Professor EASTON, Assistant Professor PENNIMAN, Dr. CHILD, Dr. ALDEN.

Majors—English Literature, English Philology.

Minors—1. English Philology.

2. English Literature. Either courses 2 or 3 as a basis, combined with 1, or with 4.

A. ENGLISH LITERATURE.

Professor SCHELLING.

1. English Lyrical Poetry, from Wyatt to the death of Dryden. (Omitted in 1898-99)..... 3
2. The English Drama from the Mystery Play to the closing of the Theatres in 1642..... 3

Assistant Professor PENNIMAN.

3. The Romantic Movement in Modern English Literature.... 3

Dr. CHILD.

4. Middle English Literature (1200 to 1500)..... 1

Dr. ALDEN.

5. English Versification (*Second Term*)..... 2

From the Anglo-Saxon to the modern period. Schipper, *Grundriss der englische Metrik.*

NOTE.—The lectures in all the courses in English Literature are supplemented by class-work, in which papers em-

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Hours per week.

bodying original work within the range of the general subject are presented by the students and discussed. A course in English Philology, equivalent to a minor, will be required of all who take English Literature as a major. Some work in English History may also be demanded of students taking major or minor courses in English Literature.

B. ENGLISH PHILOLOGY.

Professor EASTON.

1. Anglo-Saxon 2
2. Readings in Middle English..... 2
3. Elizabethan English..... 1

The purpose is to offer a basis of comparison for the study of the language and style of modern English authors. Comparison of the three forms of speech, Anglo-Saxon, Middle English and Modern English, in the phonetic forms, including the orthography and syntax, is kept up from the beginning to the end of the courses.

The instructor gives the class a course of lectures upon the history of the English language and the sources of its vocabulary; also upon phonetics.

Sweet's, Cook's (or Bright's) Sievers' and March's *Anglo-Saxon Grammars,* Sievers' *Phonetics,* Wyatt's *Beowulf,* MacLean's *Old and Middle English Reader,* Morris and Skeats' *Specimens,* Sweet's *Grammar and History of English Sounds,* Abbot's *Shakesperean Grammar.*

VIII. PHILOSOPHY, ETHICS, PSYCHOLOGY AND PEDAGOGY.

Assistant Professor WITMER, *Chairman;* Professor FULLERTON,* Professor BRUMBAUGH, Assistant Professor NEWBOLD, Dr. SINGER.

During the absence of Prof. Fullerton, the Rev. EDMUND T. SHANAHAN, D. D., Ph. D., Associate Professor of Philosophy in the Catholic University of America, Washington, D. C., will give a course under the jurisdiction of Group VIII.

* Absent on leave.

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Majors—Philosophy, Ethics, Psychology, Pedagogy.

Minors—1. History of Philosophy, A 8 and 10.

2. Ethics, A 14 and 15, with either A 2 or A 16.

3. Epistemology and Logic.

(*a*) A 5, 6 and 11.

(*b*) A 7 and 19.

4. Psychology, B 1, 2, 3, 4 and one other of the courses announced.

5. Pedagogy, C 1 and 2.

A. PHILOSOPHY AND ETHICS.

The courses in Philosophy and Ethics are arranged in a three-year cycle. In each year there will be given: (1) a general course in the History of Philosophy; (2) seminary courses supplementary to this more general course, and designed to bring the student into contact with the texts; (3) special courses in Logic, Ethics, Epistemology and Philosophy of Science.

General Course.

Dr. Shanahan.

2. Mediæval Philosophy..... 2

A course of twenty-five lectures on the sources, development, character and chief tenets of the Mediæval Philosophy. Influence of Aristotle. The special branches of Epistemology, Psychology, Metaphysics, Natural Theology, Ethics and Æsthetics critically considered. Studies in the original texts.

Seminary Courses.

Assistant Professor Newbold.

3. Aristotle's *Metaphysics*..... 2

A critical reading and discussion of selected portions of Aristotle's *Metaphysics*. A knowledge of Greek is desirable, though not essential.

Dr. Singer.

4. German Idealism..... 2

Exposition and criticism of selected portions of Kant, Fichte and Schopenhauer. A knowledge of German is desirable, though not essential.

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SPECIAL COURSES. Hours per week.

Assistant Professor NEWBOLD.

5. Cognition, Thought and Will..... 2
6. The Analysis and Synthesis of Experience..... 2

The primary aim of course 5 will be the study of the more complex problems of reasoning and volition.

Course 6 will deal with those questions to which, although usually classed as metaphysical or philosophical, psychology inevitably leads the student. Aims and methods of philosophy as contrasted with those of metaphysics. Origin and function of the *a priori* element in consciousness. Function of the concept in the organization of knowledge. Criticism of the architectonic concepts of philosophic systems.

Dr. SINGER.

7. Development of Scientific Thought..... 2

Students will be aided in collecting material for a historical and critical study of the fundamental concepts of the biological, mathematical and physical sciences.

Among the courses which are planned for future years, the following may be mentioned:

Professor FULLERTON.

8. History of Ancient Philosophy..... 2
9. History of Mediæval Philosophy..... 2
10. History of Modern Philosophy..... 2
11. Epistemology. Seminary..... 2

Assistant Professor NEWBOLD.

2. History of Modern Ethics..... 2
12. Stoics, Epicureans and Sceptics. Seminary..... 2
13. The Philosophy of the Renaissance. Seminary..... 2
14. The Empirical Movement of the eighteenth and nineteenth centuries. Seminary..... 2
15. The Analysis of Ethical Theories (*One Term*)..... 2
Based on Sidgwick's *Methods of Ethics*.
16. The Factors of Conduct (*One Term*)..... 2
Lectures. A study of Ethics from the psychological point of view.
17. History of Græco-Roman Ethics. Seminary..... 2

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Dr. SINGER.

Hours per week.

18. German Idealism..... 2
A course analogous to 4, but based upon the writings of Kant, Schelling and Hegel.

19. Modern Logic..... 2
Historical and critical study of the development of logical theory from Hegel to the present time.

20. Review of Contemporary Thought..... 2

B. PSYCHOLOGY.

Assistant Professor WITMER.

1. Physiological Psychology (*One Term*)..... 2
The general relation of mind and body, the anatomy and physiology of the human nervous system, sense organs and muscular system. Lectures, demonstrations and dissection of the brain.

2. Sensation and Perception (*One Term*)..... 2
An analytic study of the phenomena of perception from the introspective, psychophysical, and psychophysiological points of view. Lectures, demonstrations and class experimentation. Follows upon course 1.

3. Complex Mental Processes (*One Term*)..... 2
Memory, association, ideation, apperception, hallucination, imagination, attention, emotion, impulse, habit and volition. Lectures and class experimentation.

4. Experimental Psychology (*One Term*)..... 2
A study of the experimental methods of measuring mental phenomena, with an examination of the more important results of modern research. Laboratory course, requiring individual experimentation. Follows upon course 3.

5. Modern Psychological Theory..... 1½
Wundt's *Grundzüge der Physiologischen Psychologie* is the required text-book. This work will be compared with other modern treatises, and with the results of recent research published in American and European journals.

6. Selected Themes in Experimental Psychology—Laboratory and Seminary Course..... 1½
The topics selected vary from year to year. They include rhythm, time relations of mental phenomena, elementary problems of pleasure, pain and æsthetics, the emotions, association and apperception, psychophysical methods.

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Hours per week.

7. Seminary Course in Child Psychology..... 1½

An examination of the problems of mental development. Experimental investigations are conducted by the students, or observations recorded and collated. Opportunity is given for studying classes of children that deviate more or less widely from the normal. A psychological clinic will supplement schoolroom observation in the study of special cases of retarded or unusual mental development.

8. Individual Laboratory Work. (Number of hours not assigned.)

Experimentation under the direction of the professors in charge. May be either laboratory experimentation, or such as may be conducted upon children in the schoolroom.

C. PEDAGOGY.

Professor BRUMBAUGH.

1. Institutes of Education..... 2

This course consists of lectures, essays and private readings. Rosenkranz, *Philosophy of Education;* Laurie, *Institutes of Education;* Herbart, *Science of Education;* Rein, *Outlines of Pedagogics.* (Omitted in 1898-99.)

2. History of Education..... 2

The object of this course is to investigate present educational problems in the light of their historic unfolding; to apply the results of this study to the actual work of the schools.

3. Educational Systems and Ideals..... 2

This course will require original individual research. The lectures will deal more especially with systems of education set forth in ideal or theoretic treatises. The course can be taken only after course 2.

4. Educational Seminary..... 1

Except in special cases, only such as elect Pedagogy as a major subject will be admitted to this seminary.

NOTE.—The PHILOSOPHICAL CLUB consists of the instructors working in Group VIII, together with such students as may be invited to become members. It meets monthly for the discussion of original papers and recent books.

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IX. HISTORY.

Hours per week.

Professor McMASTER, *Chairman;* Professor CHEYNEY, Assistant Professor MUNRO: Dr. WHITCOMB and Dr. AMES: Dr. HOWLAND.

Majors—American History, American Constitutional History, Mediæval History, Modern European History, English History.

Minors—1. Church History. B 7, 8, 9, and 10 or 11.
2. For students of Philology. B 6, 3, and 10 or 11.
3. For students of English Literature. B 1 or 2, and 9. A 2.
4. For students of Economics and Politics. B 1 or 2, and 10 or 11.
5. Any suitable arrangement of courses under A.

A. AMERICAN HISTORY.

Professor McMASTER.

1. American Politics. Seminary..... 3
This course covers the period from 1763 to 1861 and is purely political. The topics treated are: American State papers, rise and fall of national parties, political movements that have failed, political biography, political orations, party platforms, party organization and methods, history of Congress.

2. The Life of the People. Lectures..... 3
This course is not political. It will treat of: public lands, distribution of population, currency and banking, trade and commerce, internal improvements, moral and socialistic movements, effects of discoveries and inventions, periods of reform, expansion of the country, slavery.

3. The United States since the Civil War. Seminary..... 3
This course begins with a review of the causes of secession, the steps taken to carry it out, and an examination of the questions involved, both foreign and domestic. It is divided into: secession and reconstruction, financial history, industrial history, growth of the West, labor issues, politics, foreign relations and complications. (Omitted in 1898-99.)

Dr. AMES.

4. The Constitutional History of the Colonies (*First Term*).. 2
The political heritage; the origin and administration of the charters; the principles of colonial government; the

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Hours per week.

rise of the representative and bicameral systems; the origin of the different types of local government; colonial legislation; plans of union and growth of the continental idea, 1643-1776; struggle for the rights of Englishmen; struggle for the rights of man.

5. The Constitutional History of the Revolution and of the Confederation (*Second Term*)..... 2

The Continental Congress, the nature of its work and its relation to the States; formation of the Confederation; the Articles of Confederation, history and defects; administration of the government and its relation to the States, one or thirteen; transitional character of the period.

6. The Commonwealth Constitutions of the Eighteenth Century. (Omitted in 1898-99.)..... 2

7. The Formation of the Federal Constitution. (Omitted in 1898-99.)

8. The Constitutional History of the States (*Second Term*).. 2

(*a*) The Triumph of Democracy, 1800-1850. Constitutional conventions; ratification of constitutions and amendments by popular vote; abolition of property qualification, and establishment of manhood suffrage; short terms and rotation in office; ordinary law in the organic law; corporation and State control.

(*b*) The Preservation of Democracy, 1850-1896. New features in the constitutions; limitations upon legislatures; extension of governmental intervention; opposition to monopolies; "Granger legislation;" Prohibition; secret ballot; initiative and the referendum; "the unwritten constitution," judicial decisions and administrative customs.

9. The Constitutional History of the United States..... 2

(1) 1789-1815; (2) 1815-1860; (3) 1860-1876. (Omitted in 1898-99.)

10. History of the Foreign Relations of the United States (*Second Term*)..... 2

A study of the chief questions connected with our foreign relations, from the appointment of the Committee on Foreign Relations in the Continental Congress to the present time. Lectures, collateral readings and preparation of papers.

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B. EUROPEAN HISTORY.

Professor CHEYNEY.

Hours per week.

1. Seminary in English Constitutional History..... 2
2. Seminary in Economic and Social History. (Omitted in 1898-99.) 2
3. Relations between England and the Continental Countries in the fourteenth and fifteenth centuries..... 2
4. History of English Society. (Omitted in 1898-99.)..... 2
16. Historical Construction..... 2

Intended to give training in the processes of historical synthesis and exposition, as distinguished from analysis and criticism. Subjects to be taken from the period of the English Reformation.

Assistant Professor MUNRO.

5. The Crusades. Seminary..... 2
6. The Investiture Strife. Seminary. (Omitted in 1898-99.) 2
7. Church History of the First Six Centuries..... 1
8. Church History from A. D. 600 to A. D. 1300. (Omitted in 1898-99.) 1
9. Mediæval Paleography and Diplomatics. (Omitted in 1898-99.) 1

Assistant Professor MUNRO and Dr. HOWLAND.

14. Methods of Historical Research..... 2

Dr. WHITCOMB.

10. The Early Reformation Period. Seminary. (Omitted in 1898-99.) 2
11. The Reformation in France. Seminary. (Omitted in 1898-99.) 2
12. The French Revolution (*a*). Seminary..... 2
13. The French Revolution (*b*). Seminary. (Omitted in 1898-99.) 2

Professor CHEYNEY, Assistant Professor MUNRO, Dr. WHITCOMB.

15. Bibliography 2

A study of general historical bibliographies, guide books and periodicals, and the special bibliography of mediæval history; followed by that of modern European history and of English history during the second term.

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X. ECONOMICS, POLITICS, SOCIOLOGY AND STATISTICS.

Professor PATTEN, *Chairman;* Associate Professor FALKNER, Assistant Professors ADAMS, E. R. JOHNSON, LINDSAY, ROWE and SEAGER; Dr. YOUNG.

Majors—Political Science, Economics, Transportation and Commerce, Statistics, Sociology.

Minors—1. Political Science; A 1, 4; B 10.
2. Public Finance; A 3, and B 1, 2, or C 1, 2.
3. Administration; A 8, 6, 3, or A 9, 2, 4 b; and C 5 d.
4. Economic Theory; B 1, 2, and B 10, or Mills' *Political Economy* (2 hours a week).
5. History of Economic Thought; B 1, 2, 3, 4.
6. Economic History; B 10, and Group IX. B 2,4.
7. Transportation and Commerce; B 11, 12, and A 4, or B 1, 2, or C 1, 2.
8. Statistics; C 1, 2, 3, 4, or C 1, 2, 3, and A 3 (one term), or B 11.
9. Sociology; C 5 c, 6, B 1, or C 5 b, 6, 1, or C 5 c d, A 4.

A. POLITICAL SCIENCE, FINANCE AND ADMINISTRATION.

Assistant Professor ADAMS.

Hours per week.

1. Political Science Conference..... 2
Reading and discussion of portions of the following works: Bodin's *Commonwealth;* Hobbes' *Leviathan;* Locke's *Civil Government;* Montesquieu's *Spirit of Laws;* Rousseau's *Social Contract;* Bentham's *Fragment on Government;* Bautmy's *Studies in Constitutional Law.*

2. Public Finance..... 2
A study of the sources, modes of expenditure, and methods of public revenues. Lectures, with reports on assigned subjects.

3. History of Representative Government..... 2
Political representation in Greece and Rome; its rise and development among the Anglo-Saxons, Franks, Germans,

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Hours per week.

and American colonists. Lectures, with reports on assigned subjects.

Assistant Professor ROWE.

4. The Individual and the State..... 2

(*a*) (*First Term.*) The concept of individual liberty at different periods of political development. Relation to law and government. Civil and political rights in the political system of the United States. Comparison with England, France and Germany. Guarantees, legal and political. Social liberty in Democratic communities.

(*b*) (*Second Term.*) Relation of the State to industrial action. Socialism and Individualism. Influence of economic and social changes on the sphere of activity of the State. Growth of free contract. Effect of recognition by the State of new forms of association. (Omitted in 1898-99.)

5. History and Theory of the State..... 2

(*a*) (*First Term.*) The general principles of political science. Its province and problems. Relation to the social sciences. Nature of political association; origin of the State; source and function of law.

(*b*) (*Second Term.*) The concept of the State at different epochs. Growth of the distinction between State and government. Ends of the State; sphere of its authority; forms of State and of government.

6. Municipal Government and Institutions..... 2

(*a*) (*First Term.*) The city and conditions of city life in the ancient, mediæval and modern world. The relation between City and State in Europe and the United States.

(*b*) (*Second Term.*) Problems of modern city life. Relation to quasi-public works. Social problems.

7. The Analytical School of Jurisprudence in its Relation to Political Science (*Second Term*)..... 2

Selected readings from Bentham, Austin, Holland, Maine and Pollock.

7*a*. International Law (*Second Term*)..... 2

Dr. YOUNG.

8. Constitutional Government in Continental Europe (*First Term*)..... 2

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Hours per week.

A study of the recent development and present condition of constitutional systems in Prussia and the German Empire: the constitutional laws of France.

9. Modern Administrative Reforms and Reformers in Europe (*Second Term*)..... 2

Organization and methods of Colbert; the Napoleonic system of administration, and its effects on France; Stein's attempted reforms, his administrative ideas and political ideals; von Gneist and the modern Prussian organization of local administration; the influence of English local institutions on Prussia.

11. Local Administration (*One Term*)..... 2
12. Practical Administrative Questions (*One Term*)..... 2

B. ECONOMIC THEORY, ECONOMIC HISTORY, TRANSPORTATION AND COMMERCE.

Professor PATTEN.

1. History of Political Economy (*First Term*)..... 2

The rise and development of the classical school of economists, Adam Smith and Ricardo forming the natural centre of study. Special attention is given to the sources of Smith's *Wealth of Nations;* and in the latter part of the course, to the interpretation of Ricardo's writings.

2. Recent Development of Political Economy (*Second Term*) 2

The American economists are carefully studied. Prominence is given to the recent development of the theory of rent, to the theory of marginal utility, to the new aspects of the science resulting from an emphasis of the dynamic causes of social progress, and to recent attempts to substitute consumption for production as the starting point of investigation and the basis of theory.

3. The Development of English Thought..... 2

A study in economic interpretation of history, based on English experience for the last three centuries.

4. Scope and Method of Political Economy (*Second Term*).. 2

Limitations of scope in economic investigation; its causes as deducible from the history of the science. The processes by which the great writers established their characteristic doctrines will be particularly considered.

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5. Practical Applications of Economic Theory (*First Term*). 2
The object is to show the practical importance of the new theories, and the changes they will work in public opinion. The distribution of the surplus will be specially considered, along with its proper weight as a factor in practical problems.

6. Problems of Sociology (*Second Term*)..... 2
The possibility of a science of sociology; the attempts to found such a science, and the obstacles encountered; the relation of economics to sociology.

7. Investigation of Special Topics..... 2
Each student must select a topic, and give three hours a week to it throughout the year.

Assistant Professor SEAGER.

8. Economic Conference..... 2
Reading and discussion of assigned portions of the following works: Taussig, *Wages and Capital;* Böhm-Bawerk, *Positive Theory of Capital;* Marshall, *Principles of Economics;* Smart, *Studies in Economics.* Reports on cognate topics of special interest.

8a. Economic Conference..... 2
Reading and discussion of assigned portions of the following works: Malthus, *Essay on Population* (1798), *Pamphlets on Corn and Rent* (1814-1815); West, *Application of Capital* (1814); Ricardo, *Essay on Profits* (1815); *Political Economy* (1817); Senior, *Political Economy* (1835); Cairnes, *Leading Principles* (1874). Reports on the important economic literature of each period.

9. Advanced Reading in German Economics..... 1
Meager, *Grundsätze der Volkswirthschaftslehre;* Schmoller, *Ueber einige Grundfragen der Socialpolitik;* Wagner, *Grundlagen der Volkswirthschaft.*

10. The Industrial Revolution (*First Term*)..... 2
The industrial system of England in 1750 is made the starting point for a study of the technical inventions and the political and social changes which ushered in the modern factory system. Special attention will be directed to the causes and consequences of England's free trade policy.

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Assistant Professor E. R. JOHNSON.

Hours per week.

11. Theory of Transportation..... 1
Competition and co-operation in railway management. Theories underlying governmental regulation in the United States and other countries. Theory of rates. Lectures, accompanied by assigned readings.

12. American Railway Transportation..... 2
Seminary, based mainly upon documentary sources. The work comprises (1) an examination of the salient features of the organization and management of railway transportation in the United States; and (2) a special study of railway regulation by the States and by the Federal government.

13. Transportation Systems of the United Kingdom and Germany 1
Organization, relation to the government, results of regulation of railways in the United Kingdom, and of State ownership in Germany.

14. History of Commerce since 1500..... 1
Lectures, assigned readings and investigations. Special attention will be given to the causes that have given the United Kingdom the commercial supremacy of the world. The last third of the course is devoted to a critical study of the development of American commerce.

C. SOCIOLOGY AND STATISTICS.

Associate Professor FALKNER.

1. Introduction to Statistics (*First Term*)..... 2
A study of the statistics of population will serve to develop the general aspects of the science, the organization of statistical work, and the possibilities and limitations of statistical argument.

2. Statistics of Economic Problems (*Second Term*)..... 2
This course supplements course 1: foreign commerce, railroads, banks, coinage, prices, strikes, wages, cost of living, will be studied from a statistical point of view. The literature will be reviewed and criticised.

3. History and Theory of Statistics (*First Term*)..... 2
Summary of statistical efforts and statistical theory, culminating in the elaboration of statistical methods. Consideration of statistics as a science of method; the basis and

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Hours per week.

form of statistical judgments. (Open to students who have taken courses 1 and 2.)

4. Statistical Organization (*Second Term*)..... 2

A critical survey of the history, organization and function of statistical agencies at home and abroad. (Open to students who have taken courses 1 and 2.)

Assistant Professor LINDSAY.

5. Theory of Sociology (*Two Years*)..... 2

A systematic course in four parts; each part requiring two hours per week for half a year, and constituting an independent course.

(*a*) Methodology of the social sciences; their relations to economics. Brief review of the leading attempts to construct sociology as a science—Aristotle, Montesquieu, Comte, Spencer, Ward and Giddings.

(*b*) Primitive Society. Special study of the forms of the family and of the mental traits of primitive man. Special attention is given to the records of the American Indians.

(*c*) Structure of Modern Society. A study of the forms of social organization and social control resulting from modern demogenic association. The basis and relative strength of educational, political, religious and philanthropic factors. (Omitted in 1898-99.)

(*d*) Social Movements of Modern Times. A discussion of the leading practical social problems of to-day, with a view to establishing a consistent theoretical point of view. (Omitted in 1898-99.)

NOTE.—5 *d* is open only to students who have had parts *a*, *b* or *c*, or an equivalent.

6. Social-Debtor Classes..... 2

This course deals with those groups and individuals in modern society who contribute nothing to the social surplus. They are considered under the heads of (*a*) the reclaimable class; (*b*) the naturally dependent class; (*c*) the pauper class; (*d*) the criminal classes. The methods of dealing with these groups are classified and discussed.

7. Sociological Field Work..... 2

For special investigation of local social conditions and institutions. Meetings for private conference and discussion are assigned.

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SEMINARY. Hours per week.

Seminary in Political Science, Economics and Sociology.... 2

The seminary meets on Monday evenings during the academic year, for the presentation and discussion of papers prepared under the direction of the professors in charge of the several topics in Group X.

XI. MATHEMATICS.

Professor DOOLITTLE, *Chairman;* Assistant Professors CRAWLEY, FISHER and SCHWATT; Dr. HALLETT.

Major—Mathematics.

Minors—Students will arrange their minors by selecting the requisite number of the following courses, 4, 5, 6, 19, (6 and 19 presuppose a knowledge of 4 and 5) 8 *a* or 8 *a* and *b*, 7, 9, 10, 14.

Assistant Professor CRAWLEY.

1. Theory of Numbers..... 2
   Linear congruences, law of quadratic reciprocity, binary quadratic forms, general theory of numbers. (Omitted in 1898-99.)
2. Theory of Numbers (Seminary, alternate weeks) (*Unit Course*) 2
   The work of this course consists in prescribed readings and reports thereon, upon lines parallel to the lectures in course 1. (Omitted in 1898-99.)
3. History of Mathematics (*One Term*). (Omitted in 1898-1899.) 1
   Lectures upon the more important periods, supplemented by papers upon assigned topics by the students.
4. Determinants 2
   The general theory of determinants with some of the applications (*First Term*).
5. Plane Analytic Geometry..... 2
   Exposition of the most recent methods pursued in the analytic study of the conics (*Second Term*).
6. Higher Plane Curves..... 2
   Trilinear and tangential co-ordinate systems. Theory of rectilinear asymptotes and singularities of algebraic curves. Special applications to curves of the third and fourth degree.

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Assistant Professor FISHER. Hours per week.

24. Advanced Differential and Integral Calculus..... 2

7. Differential Equations..... 2

Theory and applications of ordinary and partial differential equations containing real variables.

8. Invariants and Covariants (*Two Years*)..... 2

(*a*) (*First Year.*) Theory of linear equations; the properties of functional determinants and resultants; fundamental processes for forming invariants; special study of binary forms of the second, third and fourth orders. (Omitted in 1898-99.)

(*b*) (*Second Year.*) Brief exposition of the symbolical method as presented in Gordan, *Invariantentheorie* and Clebsch, *Binäre Formen.* Some applications of the theory of ternary and general forms to curves and surfaces.

9. Theory of Functions of a Real Variable..... 2

Introductory to the theory of functions of a complex variable.

10. Theory of Functions of a Complex Variable..... 2

(*a*) (First Course.) The general theory, combining the ideas of Cauchy, Weierstrass and Riemann.

(*b*) (Second Course.) (*First Term.*) Elliptic functions. (Omitted in 1898-99.)

11. Linear Differential Equations (*Second Term*)..... 2

Definitions; singular solutions; Fuchs' method of integration by the theory of functions; methods of Hermite, Poincaré, Sophus Lie, Klein, Picard and Appell. (Omitted in 1898-99.)

Assistant Professors FISHER and SCHWATT.

12. Seminary in the Theory of Functions..... 2

Assistant Professor SCHWATT.

13. Infinite Series and Products..... 2

Summation of series; expansion of functions into infinite series and products; hypergeometric series; the series of Fourier, Lagrange, etc.

14. Definite Integrals..... 2

Beta and Gamma functions; Cauchy's and Fourier's integrals; applications to the theory of series; applications to mechanics. (Omitted in 1898-99.)

15. The Functions of Bessel, Laplace and Lamé..... 2

Properties and relations of these functions; spherical harmonics.

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Hours per week.

16. Elliptic Functions of a Real Variable..... 2
The three kinds of elliptic functions; the addition-theorems; expansion of the elliptic functions into infinite series and products. (Omitted in 1898-99.)

23. Hyperelliptic and Theta Functions of a Real and Complex Variable (*First Term*)..... 2
Reduction of hyperelliptic to elliptic functions.

17. Abelian Functions..... 2
Properties of Abel's integrals. "Elementary" integrals of the first, second and third kind; Riemann's existence-theorem and its application to Abel's integrals; the Theta function in relation to Abel's integrals (*Second Term*).

18. Application of the Theory of Functions of a Complex Variable (*Second Term*)..... 1
Applications to geometry and physics.

Dr. HALLETT.

19. Geometry of Three Dimensions..... 2
Co-ordinates; the plane; surfaces of the second degree (conicoids); systems of conicoids; reciprocation; confocal and concyclic conicoids; quadriplanar and tetrahedral co-ordinates; surfaces in general; curves; curvature of surfaces. (Omitted in 1898-99.)

20. Theory of Surfaces..... 2
.. Lectures based upon Darboux, *Theory of Surfaces.*

21. Theory of Substitutions..... 2
Symmetric and two-valued functions; correlation of functions and groups; multiple-valued functions; general classification of groups; functions belonging to the same group; special classes of groups. Application of the theory of substitutions to the theory of equations. (Omitted in 1898-99.)

22. Theory of Groups..... 2
Lectures on the general theory of finite groups.

MATHEMATICAL CLUB.

The main purpose of the Mathematical Club is to unite all those connected with the University who are interested in Mathematics in one organization, where they may join in the free discussion of their work. The members are undergraduate as well as graduate students, and former students who are resident in or near Philadelphia, besides the members of the teaching staff.

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XII. ASTRONOMY.

Professor DOOLITTLE, *Chairman;* Mr. ERIC DOOLITTLE.

Professor DOOLITTLE.

Hours per week.

1. Method of Least Squares, considered historically and practically (*Second Term*)..... 2
2. Reduction of stellar coördinates to a homogeneous system. Investigation of the constants of precession, nutation and aberration, and the variation of terrestrial latitude (*Second Term*)..... 2
3. History of Astronomy (*First Term*)..... 2

Lectures, accompanied by reading and seminary work.

9. Observatory Practice (Double Course)..... 6

Mr. ERIC DOOLITTLE.

4. Practical Astronomy..... 3

Spherical coördinates, parallax, refraction, time, latitude, longitude, azimuth, occultations, eclipses, precession, nutation, aberration, stellar proper motion, theory of astronomical instruments. Observatory practice.

This course is based upon Doolittle, *Practical Astronomy,* and Chauvenet, *Spherical and Practical Astronomy.*

5. Theoretical Astronomy (*a*)..... 2

Integration of general equations of motion in case of two bodies. Determination of the parabolic, elliptic, or hyperbolic elements from three and from four complete observations. Computation of ephemerides. This includes a practical determination of the undisturbed elements of the orbit of a comet or planet.

Vol. I of Oppolzer, *Lehrbuch zur Bahnbestimmung,* and Watson, *Theoretical Astronomy.*

6. Theoretical Astronomy (*b*)..... 2

Special and general perturbations, numerical differentiation and integration, correction of the elements of orbit with application of the method of least squares to determine the most probable system. Computation of planetary tables. Watson, *Theoretical Astronomy,* and Ritter, *General Perturbations.*

7. Astronomical Seminary..... 1

Investigation of special problems.

8. Secular Perturbations..... 3

The general equations by Jacobi's method. Gauss's

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method as developed by Hill, Halphen, Callandreau and Dr. Louis Arndt. Lectures, with reference to the original memoirs.

NOTE.—The observatory, equipped with an 18-inch equatorial telescope, and other instruments of the latest and most approved design, offers every facility to those students who wish to familiarize themselves with the practical details of astronomical work.

XIII. PHYSICS.

Professor BARKER, *Chairman;* Assistant Professor GOODSPEED, Dr. RICHARDS.

Major—Theoretical and Experimental Physics.

Minors—Six hours of laboratory work, and four lecture courses in addition.

	Hours per week.
Professor BARKER.	
1. Constitution and Properties of Matter (*First Term 1899-1900*)	2
2. Wave Motion and Radiation (*Second Term 1899-1900*)	2
3. Theory and Practice of Spectroscopy (*First Term 1898-99*)	2
4. Electricity and Magnetism (*Second Term 1898-99*)	2
5. Theory of Physical Measurements	2
11. History of Physics	2
Professor BARKER and Assistant Professor GOODSPEED.	
6. Absolute Physical Measurements (*Laboratory*) (*Equivalent to three standard courses.*)	9
Assistant Professor GOODSPEED.	
7. Theoretical Dynamics (*First Term*). (Omitted in 1898-99.)	2
8. Thermodynamics (*Second Term*)	2
9. Theory of Potential (*First Term*)	2
Dr. RICHARDS.	
10. Theory of Sound (*Second Term*)	2

The basis of the course is advanced experimental work in the laboratory, courses 5 and 6. The other courses, which are lecture courses, supplement this. In the laboratory the aim is to put the student in possession of the best methods

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of physical experimentation and measurement; in the class-room, discussions are held and lectures given on advanced theoretical portions of the subject, and the experimental results obtained are reviewed and criticised. Collateral reading of standard works and the current literature is required.

XIV. CHEMISTRY.

Professor SMITH, *Chairman;* Dr. FLECK, Dr. MOYER, Dr. SHINN, Dr. HARDIN.

Majors—Inorganic Chemistry. Organic Chemistry. Electro-Chemistry.

Minors—1. Courses 1 and 8, Laboratory work, six hours.
2. Courses 2 and 5, Laboratory work, six hours.

	Hours per week.
Professor SMITH.	
1. Advanced Inorganic Chemistry	2
2. History of Chemistry (*every other year*)	1
3. Electro-Chemistry	1
4. Mineral Analysis (*One Term*). Seminary	1
Dr. FLECK.	
5. Organic Chemistry	2
6. Gas Analysis (*One Term*)	1
Dr. HARDIN.	
7. Physical Chemistry	1
Dr. MOYER.	
8. Analytical Chemistry	1
Dr. SHINN.	
9. Industrial Chemistry; Selected Topics	1

The practical work of advanced students in Chemistry is carried on in the John Harrison Laboratory of Chemistry, which is thoroughly equipped for both undergraduate and graduate work. Special research rooms are set aside for advanced students, and every facility is given them for investigation in the fields of inorganic, organic and electro-chemistry. For the latter subjects special arrangements have been made. The electrolytic methods of metal determination and separation, the preparation of both inorganic and

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organic bodies by electrolysis, and the reduction of metallic oxides in the electric furnace can be studied in special laboratories arranged for such work. All modern apparatus, necessary for the execution of physico-chemical methods, for gas analysis and spectroscopy, are placed at the convenience of students. Ample facilities are offered for the study of the so-called rare earths.

XV. BOTANY AND ZOÖLOGY.

Professor CONKLIN, *Chairman;* Professors JAYNE, MACFARLANE; Dr. MOORE, Dr. HARSHBERGER, Dr. CALVERT, Dr. PORTER, Dr. MONTGOMERY.

Majors—Botany: Morphology and Physiology; Taxonomy and Distribution.

Zoölogy: Human Anatomy; Mammalian Osteology; Comparative Anatomy of the Vertebrates; Comparative Embryology, Histology and Invertebrate Zoölogy.

Minors—Botany. Any one of the Botanical courses pursued for two years, or two courses pursued for one year.

Zoölogy. 1. Courses 5, and 6 *a*, or 6 *b*, or 6 *c*.
2. Courses 2 and 4.
3. Courses 3 and 4.

A. BOTANY.

Professor MACFARLANE.

1. (*a*) Plant Irritability and Irrito-contractility. One hour lecture, four hours laboratory and seminary work (*First Term*).
(*b*) Plant Nutrition. One hour lecture, four hours laboratory and seminary work (*Second Term*).
2. Plant Cytology. One hour lecture, four hours laboratory and seminary work.

Dr. HARSHBERGER.

3. Comparative Study of the Fungi. One hour lecture, four hours laboratory and seminary work.

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Dr. PORTER.

4. Comparative Study of the Pteridophyta. One hour lecture, four hours laboratory and seminary work.

Professors MACFARLANE and CONKLIN.

5. Evolution of Plants and Animals. One hour lecture, alternating with one hour seminary.

With the consent of the professors and lecturers concerned, this course will be accepted in lieu of an equivalent amount of work in either Botany or Zoölogy, but will not be accepted as a basis for thesis work.

NOTE.—The courses of Botany above announced will alternate with others of similar value, but bearing on different subjects, given in the succeeding year. Information concerning these courses, and also concerning thesis work, will be given by Professor Macfarlane.

B. ZOÖLOGY.

Professor JAYNE.

1. Human Anatomy.
2. Mammalian Osteology.

Professor CONKLIN.

3. Comparative Embryology of the Invertebrates. One hour lecture, five hours laboratory or seminary.
4. Comparative Embryology of the Vertebrates. One hour lecture, five hours laboratory or seminary. (Omitted in 1898-99. Alternates with 3.)

Professor CONKLIN and Dr. MONTGOMERY.

5. Comparative Histology. I. Cell Studies. One hour lecture, five hours laboratory or seminary. (To alternate with other subjects in future years.)

Professor CONKLIN, Dr. MOORE and Dr. CALVERT.

6. Invertebrate Zoölogy. One hour lecture; two hours laboratory or seminary.

(*a*) Annelids, one third of a year, Dr. Moore.

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(*b*) Mollusks, one third of a year, Professor Conklin.

(*c*) Insects, one third of a year, Dr. Calvert.

(To alternate with the study of other groups in future years.)

Dr. MOORE. Hours per week.

7. Comparative Anatomy of the Vertebrates (Lectures, laboratory) 3
9. Zoölogical Seminary..... 1

Required of all graduate students in Zoölogy.

10. Evolution of Plants and Animals (*See Botany 5*).

In Biological Hall there are, in addition to the laboratories for undergraduate work, four laboratories for graduate courses; private rooms and laboratories for the instructors; herbarium; photographic and chemical rooms; a reading room and a working library. The herbarium includes collections made by I. Burk, Leidy, Rothrock, Gray, Aubrey-Smith and other well-known botanists. The collections in the Wistar Institute of Anatomy and Biology, and the library and collections of the Academy of Natural Sciences, afford exceptional facilities for study. The biological library contains several thousand volumes, including all the important periodicals and the special zoölogical libraries of the late Professors Leidy, Ryder and Cope.

The BIOLOGICAL CLUB of the University, composed of instructors and graduate students, meets fortnightly to consider original papers, present reviews of recent important literature, and to discuss subjects of general biological interest.

XVI. GEOLOGY AND MINERALOGY.

Assistant Professor BROWN, Dr. EHRENFELD.

Majors—Geology, Mineralogy.

Minors—1. Geology, A. 1, 2, 3, 4, 5, 8 and either 6 or 7.
2. Mineralogy, B. 1, 2, 3, 4, 5, 6, 8.

A. GEOLOGY.

Assistant Professor BROWN.

1. Historical Geology..... 1
2. Lithology and Petrography..... 1
4. Chemical Geology (*Second Term*)..... 1

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Dr. EHRENFELD. Hours per week.

3. Physical Geology (*First Term*)..... 1

LABORATORY COURSES.

Assistant Professor BROWN and Dr. EHRENFELD.

5. Historical Geology (*Unit Course*)..... 2
6. Lithology and Petrography (*Unit Course*)..... 2
7. Paleontology (*Unit Course*)..... 2
8. Field excursions (*Half Course*)..... 2

B. MINERALOGY.

Assistant Professor BROWN.

1. Mathematical and Physical Crystallography (*First Term*).. 1
2. Systematic Mineralogy..... 1
3. Chemical and Synthetic Mineralogy (*Second Term*)..... 1

LABORATORY COURSES.

Assistant Professor BROWN and Dr. EHRENFELD.

4. Mathematical and Physical Crystallography (*Unit Course*).. 2
5. Systematic study of mineral species in collections (*Unit Course*)..... 2
6. Determination of minerals by physical and pyrogenetic properties (*Unit Course*)..... 2
7. Synthetic Mineralogy (*Unit Course*)..... 2
8. Field excursions to neighboring localities (*Half Course*)... 2

In the laboratory courses, the study from specimens is carried on in the mineralogical and geological museum. The other practical work is done in the mineral laboratory, which is supplied with instruments and appliances for advanced work in the subjects embraced in this group. Power machines are provided for slicing and grinding minerals and rocks; the chemical laboratory is equipped for qualitative and quantitative examination of minerals; the goniometer room is provided with apparatus for work in mathematical and physical crystallography; the dark room is arranged for photographic work, including photomicrography.

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GRADUATE DEPARTMENT FOR WOMEN.

BOARD OF MANAGERS.

CHARLES C. HARRISON, LL. D.,
Provost, and *ex-officio* President.

REV. GEORGE DANA BOARDMAN, D. D., LL. D.,
HORACE HOWARD FURNESS, LL. D., Miss FRANCES E. BENNETT,
RICHARD WOOD, Miss MARY McMURTRIE,
WM. A. LAMBERTON, A. M., LITT. D. Miss F. R. M. HITCHCOCK, PH. D.,
Mrs. MATTHEW BAIRD, Miss BERTHA DECHERT,
Mrs. GEORGE D. WIDENER.

Miss F. R. M. HITCHCOCK, PH. D., Director.

The Graduate Department for Women is under the direct control of a Board of Managers appointed by the Trustees. It provides accommodations for residence and study in a house presented by the late Col. JOSEPH M. BENNETT, of Philadelphia, nearly opposite to the Library, and convenient to the class-rooms and laboratories where instruction is given. As an integral part of the Department of Philosophy, the courses of instruction are given by the same instructors, and lead to the same degrees. A statement of these courses will be found above. For information relating to the cost of board and lodging in Bennett House, address Miss CORNELIA MARTINE, 3350 Walnut street, Station B, Philadelphia.

FELLOWSHIPS.*

THE JOSEPH M. BENNETT FELLOWSHIPS are two in number, established by the generosity of the late Colonel Bennett. They are given annually to women students in the Department of Philosophy. The incumbent must be a candidate for a higher degree, and during the term of her Fellowship must reside in Bennett House. Appointments may be twice renewed.

THE FRANCES SERGEANT PEPPER FELLOWSHIP was founded by the late Dr. William Pepper, and is given annually to a woman student in the Department of Philosophy. The conditions are the same as those of the Bennett Fellowships.

THE MRS. BLOOMFIELD MOORE FELLOWSHIPS are two in number, and are awarded upon the same conditions as the Bennett and

* For Scholarships open to women see pages 187 and 189.

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Pepper Fellowships, with the additional provision that only women who intend to teach are eligible.

These Fellowships cover tuition fees, board and lodging, with twenty-five (25.00) dollars additional for incidental expenses.

THE ALUMNÆ FELLOWSHIP FOR WOMEN was founded by the Alumnæ and other women who had formerly been students of the University, and is guaranteed until 1902. Its value is four hundred (400.00) dollars and free tuition. Applicants must hold a satisfactory baccalaureate degree, must have a good reading knowledge of French and German and must have had one year of graduate work. The holder of the Fellowship must reside in Bennett House while working in this University. If she is reappointed, the Executive Committee may allow her to work at any university, here or abroad.

Appointments to the above Fellowships are made primarily on the ground of special aptitude for, and attainments in, advanced work. Applications for appointment, or renewal of appointment, should be sent to the Dean on or before March 1. For blank forms of application, address the Dean.

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DEPARTMENT OF LAW.

FACULTY.

CHARLES C. HARRISON, LL. D., PROVOST.
——— ——— ———, VICE-PROVOST.

HON. J. I. CLARKE HARE, LL. D., Emeritus Professor of Constitutional Law.

GEORGE TUCKER BISPHAM, A. M., Professor of Equity Jurisprudence.

*GEORGE S. GRAHAM, LL. D., Professor of Criminal Law.

HON. GEORGE M. DALLAS, LL. D., Professor of the Law of Torts, Evidence and Practice at Law.

GEORGE WHARTON PEPPER, A. M., LL. B., ALGERNON SYDNEY BIDDLE Professor of Law.

CHARLES C. TOWNSEND, A. B., LL. B., Professor of Law.

GEORGE S. PATTERSON, A. B., LL. B., Professor of Law.

HAMPTON L. CARSON, A. M., LL. B., Professor of Law.

WILLIAM DRAPER LEWIS, B. S., LL. B., PH. D., Professor of Law, and DEAN OF THE FACULTY.

REYNOLDS D. BROWN, A. B., LL. B., Professor of Law.

JOHN W. PATTON, A. M., LL. B., Professor of Law.

LECTURERS.

WILLIAM H. CARSON, A. M., LL. B.
FRANCIS H. BOHLEN, LL. B.

INSTRUCTOR.

WILLIAM E. MIKELL.

FELLOWS.

JOSEPH GILFILLAN, LL. B.
ARTHUR GILLESPIE DICKSON, A. M., LL. B.
OWEN JOSEPHUS ROBERTS, A. B., LL. B.
ROY WILSON WHITE, A. M., LL. B.

BURSAR AND REGISTRAR.

GEORGE E. NITZSCHE, LL. B.

* Absent on leave.

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The Law School of the University of Pennsylvania is the oldest Law School in America. It was founded in 1790, and reorganized in 1850.

In the past it has had as professors the Honorable James Wilson, one of the Associate Justices of the Supreme Court of the United States; the Honorable George Sharswood, Chief Justice of Pennsylvania; the Honorable J. I. Clarke Hare, the President Judge of one of the Courts of Common Pleas of Philadelphia; Charles Willing Hare, Peter McCall, E. Spencer Miller, P. Pemberton Morris, E. Coppé Mitchell, A. Sydney Biddle and Samuel S. Hollingsworth.

The object of the school is to teach the principles of the common law in such a way as to fit its graduates for successful practice. It is, therefore, the effort of the members of the Faculty so to conduct their respective courses that the student may obtain not only a knowledge of the rules of law, but also the ability to deal with legal problems.

TEMPORARY LOCATION.

The present class rooms and library of the Law School, and the offices of the Dean, are located temporarily at Sixth and Chestnut streets, in buildings immediately adjacent to Independence Hall.

NEW LAW SCHOOL BUILDING.

The Corporation has purchased a lot at the southwest corner of Thirty-fourth and Chestnut streets, West Philadelphia, containing over thirty-two thousand square feet. The lot is adjacent to the other University buildings, and has a frontage on three streets. On this ground a large and thoroughly equipped law school building is being erected, which will probably be ready for occupancy during the session of 1899-1900.

A students' reading room, capable of seating six hundred persons at separate desks, will enable each student to enjoy a separate and undisturbed place of study. Ample accommodation has been provided for the large and growing collection of books; while two spacious rooms, connected with the book department, are to be specially reserved for individuals engaged in legal research. No pains have been spared to make the lecture rooms, practice court room, law club rooms and other details of the building convenient in appointment, and sufficient to supply the needs of students for many years.

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ADMISSION.

All applications for admission must be made to William Draper Lewis, Dean of the Law Faculty, 115 South Sixth street, Philadelphia.

Candidates for admission to the First-year Class are admitted: (1) on college degrees; (2) on diplomas from the more advanced public high schools, where the applicant exhibits with his diploma a certificate showing the receipt of high grades at such high school, covering the subjects required for entrance to the College; (3) by examination. The examination given is the same as that required for entrance to the College. (See pp. 61-68.)

Entrance on High School Diplomas and Certificates.—Any candidate holding a public high school diploma will be furnished with a blank "Form of Application for Admission" by the Dean. The application having been filed with the Dean, the applicant will be informed if he can be excused from all or any of the entrance examinations.

Entrance by Examination.—Any one not the holder of a college degree or diploma of a public high school can obtain information concerning the examination requirements, and the dates and places of examination, upon application to the Dean.

Admission on College Degrees.—The following is a partial list of colleges and universities, the baccalaureate degrees of which will be accepted in lieu of an entrance examination:

Acadia,
Adrian,
University of Alabama,
Albion,
Alfred University,
Allegheny,
Amherst,
Antioch,
Bates,
Beloit,
Boston College,
Boston University,
Bowdoin,
Brown University,
Buchtel,
Bucknell University,
University of California,
Carleton,
Central University,
Centre,
University of Chicago,
University of Cincinnati,
Colby University,
Colgate University,
University of Colorado,
Columbia University,
Columbian University (D. C.)
Cornell University,
Cornell College,
Dalhousie,
Dartmouth,
Delaware,
Denison University,
De Pauw University,
Dickinson,
Drake University,
Earlham,
University of Georgia,
Georgetown University (D. C.),
Hamilton,

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Hanover,
Harvard University,
Haverford,
Hillsdale,
Hobart,
Holy Cross,
Illinois College,
University of Illinois,
University of Indiana,
Iowa College,
State University of Iowa,
Johns Hopkins University,
University of Kansas,
Kenyon,
Kings,
Knox,
Lafayette,
Lake Forest University,
Lehigh University,
Leland Stanford, Jr., University
Marietta,
Massachusetts Institute of Technology,
McGill University (Canada),
Miami University,
University of Michigan,
Middlebury,
University of Minnesota,
University of Mississippi,
University of Missouri,
Mt. Allison,
Mt. Union,
University of Nebraska
University of New Brunswick,
College of the City of New York,
University of the City of New York,
University of North Carolina,
Northwestern University,
University of Notre Dame (Ind.),
Oberlin,
Ohio State University,
Ohio Wesleyan University,
Olivet,
University of Oregon,
University of Pennsylvania,
Princeton University,
Racine,
University of Rochester,
Rutgers,
St. Lawrence University,
University of the South,
University of South Carolina,
Swarthmore,
Syracuse University,
University of Texas,
University of Toronto (Canada),
Trinity (Conn.),
Tufts,
Tulane University of Louisiana,
Union,
Vanderbilt University,
University of Vermont,
Victoria,
University of Virginia,
Washington University (Mo.),
Washington and Jefferson,
Wesleyan University (Conn.),
Western Reserve University,
Western University of Pennsylvania,
West Virginia University,
Williams,
University of Wisconsin,
Wittenberg,
University of Wooster,
Yale University.

EXAMINATION IN BLACKSTONE'S COMMENTARIES.

The examination in Blackstone may be taken either in June or September, or at the expiration of the first year of the course. Those members of the first-year class who have not passed the examination prior to entrance will be admitted to a quiz class conducted by one of the instructors. Where time permits, the applicant is advised to take this examination before entering on the regular course. The first four books will constitute the basis for the examination. The applicant will not be held responsible for that part known as the "Introduction," or for the notes of any of the

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editors. He is, however, recommended to read the notes of his edition as far as they point out obsolete matter in the text. He will not be questioned on the parts of Book I dealing with the organization of the English government (Chaps. II to XIII, inclusive); or on the parts of Book III (Chaps. III to VI, inclusive), dealing with the organization of the English courts at the time Blackstone wrote. He is recommended to spend the time he would otherwise devote to these omitted parts in reading any standard work dealing with the organization of government in the United States; and to read, for information on the present government of England, Anson's *Law and Custom of the Constitution.* He will not, however, be examined on either of these subjects.

STATUS OF STUDENTS.

(Regular, Special and Partial.)

A *regular* student is one who is regularly admitted to the Department, and who is a candidate for a degree.

A *special* student is one who is regularly admitted to the Department, but who, not being a candidate for a degree, does not desire to take the regular course. Special students pay the regular term fees.

A *partial* student is one who is not regularly admitted to the Department, but who attends one or more courses. The admission of partial students is at the discretion of the Advisory Committee of the Faculty. The fee for attendance on each course is twenty-five (25.00) dollars per term, or fifty (50.00) dollars per annum.

ADMISSION TO ADVANCED STANDING.

An applicant for admission to advanced standing must submit his case in writing to the Advisory Committee of the Faculty. Blank forms of application can be had upon request to the Dean.

Admission to the Second-year Class.—1. Applicants from a law school having a *three* years' course must present a certificate from such school that they have resided at least one year at the school, and have passed all examinations in course. They must also pass one or more examinations on the work of the first year in this school, if the Dean so directs.

2. Applicants from a law school having a *two* years' course must present a certificate from such school that they have resided for at least one year at the school, and have passed all examinations in course. They must also pass all examinations of the first year with an average grade of at least 80.

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3. Applicants who have *never* attended a law school must present satisfactory proofs that they have studied law for at least two years, and must pass all examinations on the work of the first year with an average of at least 80.

Admission to the Third-year Class.—In the fall of 1899, in special cases, a candidate may be admitted to the Third-year class. Blank forms of application can be had upon request to the Dean.

COURSE OF INSTRUCTION.

FIRST YEAR.

EQUITY (History).—Professor BISPHAM. One hour per week, fourteen weeks.

TORTS.—Professor DALLAS. Two hours per week.

CRIMES.—Mr. GILFILLAN. Two hours per week.

PROPERTY.—Professor TOWNSEND. Two hours per week.

*PLEADING.—Professor PATTERSON. Three hours per week.

CONTRACTS.—Professor CARSON. Four hours per week.

EQUITY (The Origin and Nature of Equity, Bills of Peace, Interpleader, Quia Timet, Removal of Cloud upon Title, the Jurisdiction of Equity over Torts).—Professor LEWIS. Two hours per week. (Mr. MIKELL will take this class until December 1st. Subject: Elementary Law.)

*DOMESTIC RELATIONS.—Professor BROWN. Two hours per week.

SECOND YEAR.

(*System of Electives during the Second and Third Years.*—Each student is required to elect during the last two years a minimum of twenty hours. During any one year not less than ten, or more than twelve, hours can be elected. The student can obtain his average number of hours by electing a greater number of hours during one term than during the other term of the same year. In order to obtain a degree, his election must meet the approval of the Advisory Committee of the Law Faculty. No subject of the third year can be elected during the second year, but subjects of the second year, not elected during that year, can be elected during the third year.)

CONSTITUTIONAL LAW (United States Constitution).—Professor PATTERSON. Two hours per week.

PARTNERSHIP.—Professor PEPPER. Two hours per week.

EVIDENCE.—Professor DALLAS. Two hours per week.

PROPERTY.—Professor TOWNSEND.—Two hours per week.

*QUASI CONTRACTS.—Professor PATTERSON. Two hours per week.

EQUITY (Trusts).—Professor LEWIS. Two hours per week.

*Course runs one half year.

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*BILLS AND NOTES.—Professor PATTERSON. Three hours per week.

*AGENCY.—Professor BROWN. Two hours per week.

*CARRIERS.—Mr. W. H. CARSON. Three hours per week.

THIRD YEAR.

CORPORATIONS.—Professor PEPPER. Two hours per week.

INSURANCE.—Professor PEPPER. Two hours per week.

EQUITY (The Jurisdiction of Equity over Contracts, including the specific performance, reformation, and rescission thereof; Account, Equitable Conversion).—Professor LEWIS. Two hours per week.

PRINCIPLES OF THE COMMON LAW.—Professor LEWIS. Two hours per week.

*SURETYSHIP.—Professor BROWN. Two hours per week.

MORTGAGES AND CORPORATE SECURITY.—Professor BROWN. Two hours per week.

INSOLVENCY.—Professor BROWN.—Two hours per week.

PRACTICE.—Professor PATTON. Two hours per week.

PROPERTY.—Mr. GILFILLAN. Two hours per week.

*ADMIRALTY.—Mr. DICKSON. Two hours per week.

CONFLICT OF LAWS (Private International Law).—Mr. WHITE. Two hours per week.

*MUNICIPAL CORPORATIONS.—Mr. MIKELL. Two hours per week.

*CONSTITUTION AND STATUTES OF PENNSYLVANIA.—Mr. DICKSON. Two hours per week.

*DAMAGES.—Mr. ROBERTS. Two hours per week.

*NEGLIGENCE.—Mr. BOHLEN. Two hours per week.

QUIZ CLASSES.—Those students who desire quizzing are divided into sections of not more than twenty each. Mr. MIKELL, assisted by the Fellows, examines each section three hours per week upon the work of the course

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THE GEORGE BIDDLE AND ALGERNON SYDNEY BIDDLE LIBRARY.

The Library of the Law School was presented to the University by the families of the late George Biddle, and the late Professor Algernon Sydney Biddle, as a memorial to those distinguished lawyers. The families of the late Joseph B. Townsend, and of the late Arthur Biddle, have given to the library several thousand volumes, as have also Effingham B. Morris, Esq., Professor Hampton

* Course runs one half year.

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L. Carson, and many other members of the Bar. The number of volumes is at present more than 20,000.

The Library is open during the term every day, except Sundays, from 8 A. M. to 11 P. M.; and during the summer recess from 9 A. M. to 10 P. M.

TEACHING OF PRACTICE.

The Trustees last year established a course in Practice. At present the course is confined to Practice at Law and in Equity in the courts of Pennsylvania, and is intended primarily for those who expect to practice in the State. It is believed, however, that those who intend to enter on the active pursuit of their profession will derive benefit from taking the course. A Prothonotary's office is conducted in connection with the course. The student is required to draw papers, and to bring and conduct suits both in Law and Equity; the aim being to enable him to apply the theoretical knowledge gained in the other courses.

ATTENDANCE ON COURSES IN OTHER DEPARTMENTS.

Students in the Department of Law may also attend, without extra charge, the lectures given in any of the other departments of the University. This privilege can be obtained only by the student presenting a letter from the Dean of the Law Faculty to the Dean of any other faculty, endorsing his application. Many of these lectures, especially those given in the College upon English History, Political Economy and Social Science, are of value to those engaged in the study of Law.

FELLOWSHIPS.

From each graduating class a Fellow is elected by the Trustees upon the nomination of the Faculty, to hold office for one year. A Fellow may be re-elected twice. Each Fellow receives a salary of three hundred dollars, and performs, under the direction of the Dean, such duties of instruction as may be assigned to him.

SCHOLARSHIPS.

1. FACULTY SCHOLARSHIPS.—Three Faculty Scholarships are granted in each class by the Faculty to those who pass the three best entrance examinations, and in addition thereto an examination in Blackstone's Commentaries. (See supra.)

Candidates for Scholarships must take the entrance examinations

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even if they are holders of college degrees, and must present Latin as one of the languages in which they desire to be examined. The Faculty reserves the right to withdraw any of these Scholarships at any time when, in their judgment, the progress of the holder does not justify continuance.

2. CITY SCHOLARSHIPS.—Under agreement with the city of Philadelphia, fifty free scholarships exist in the University for the benefit of students from the public schools. The candidates for these scholarships are examined by the Board of Public Education, and award is made to those who reach the highest grade in examination, whenever vacancies occur from year to year.

PRIZES.

ESSAY PRIZES.—The Alumni of this Department have established two prizes, one of seventy-five dollars, called the SHARSWOOD PRIZE, and one of fifty dollars, called the MEREDITH PRIZE, to be competed for by members of the graduating class, for the best and second-best essay. They are awarded annually by the Faculty.

The essay must be handed to the Dean on or before the first Monday in February, in the third year of the course. Essays must be printed or typewritten on sheets of octavo size, with a clear margin of at least one inch.

An essay must not disclose the name of the author, and must be accompanied by a sealed envelope indorsed with a distinguishing motto, and containing the name of the author.

EXAMINATION PRIZES.—A prize of fifty dollars is given annually to the student of each class who passes the best written examination with all the professors, the answers to the questions to be completed within a limited time.

The P. PEMBERTON MORRIS PRIZE of forty dollars, for the best examinations in Evidence, Pleading and Practice at Law and in Equity, is awarded annually to a member of the graduating class.

DEGREES.

The degree of *Bachelor of Laws* (*LL. B.*) is granted to candidates who have attended upon the full course of instruction in the Department of Law, and have passed satisfactory examinations upon all the subjects of instruction. All persons regularly admitted to advanced standing (see supra), who have passed satisfactory examinations upon subjects of instruction approved by the Advisory Committee of the Faculty, are also entitled to the degree.

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ADMISSION TO THE BAR.

Admission to the Supreme Court of Pennsylvania.—All those who pass the preliminary examination of the Board of Examiners of Philadelphia County (see infra), and also pass the entrance examinations in Latin (see page 65), are entitled, on receiving the degree of LL. B., to be admitted to practice in the Supreme Court of the State.

Admission to the Courts of Philadelphia County.—All those who pass the preliminary examinations of the Board of Examiners of Philadelphia County are entitled, on receiving the degree of LL. B., to be admitted to practice in the courts of the county.

The preliminary examinations of the Board of Examiners of Philadelphia at present covers the ordinary branches of a common school education. Full information in regard to the examination and registration can be had on application to Lucien H. Alexander, Esq., Secretary of the Board of Examiners, 211 South Sixth Street, Philadelphia.

Admission to the Courts of Counties (Pennsylvania) outside of Philadelphia.—The Judges of the local courts of each county prescribe the rules for admission to their courts. To many courts the degree of this University admits. To others it does not. The rules are subject to change by the Judges at any time. Those desiring information should address the Dean.

MOOT COURTS.

There are a number of student Law Clubs. These hold Moot Courts, at which questions prepared by the Professors and Fellows are argued. These courts meet once a week during the term, and an evening is assigned to each case, some member of the Faculty usually presiding.

TUITION FEES AND TEXT-BOOKS.

Each student must pay a matriculation fee of five (5.00) dollars, and in addition thereto a term fee of eighty (80.00) dollars, *payable in advance.* The term fee must be paid within the first week of each term. No other charge is made. The total cost for tuition to a student taking a three years' course of instruction and receiving the degree of Bachelor of Laws is, therefore, $485.

A student intending to enter the Law School should not purchase any books until after the term begins. He will then be able to judge for himself how far the Law Library supplies his needs.

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It is believed that it will not be necessary for him to purchase any books during the whole course.

BOARD AND LODGING.

The University Dormitories (see index) are situated within five minutes' walk of the new location of the Department. Those who contemplate entering in 1899, and desire to secure accommodations in the Dormitories, should communicate with E. W. Mumford, Registrar, College Hall, University of Pennsylvania, Philadelphia.

MINIMUM EXPENSES PER ANNUM.

Board and Lodging in Dormitories	$175 00
Matriculation Fee (paid once only)	5 00
Tuition	160 00
Total	$340 00

For further information relating to the Department of Law, address

WILLIAM DRAPER LEWIS, Dean,
115 South Sixth St., Philadelphia.

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DEPARTMENT OF MEDICINE.

FACULTY.

CHARLES C. HARRISON, LL. D., PROVOST.

——— ——— ———, VICE-PROVOST.

ALFRED STILLÉ, M. D., LL. D., Emeritus Professor of the Theory and Practice of Medicine and of Clinical Medicine.

RICHARD A. F. PENROSE, M. D., LL. D., Emeritus Professor of Obstetrics, and of the Diseases of Women and Children.

——— ——— ———, Professor of the Theory and Practice of Medicine and of Clinical Medicine.

JAMES TYSON, M. D., Professor of Clinical Medicine.

HORATIO C WOOD, M. D., LL. D., Professor of Materia Medica, Pharmacy and General Therapeutics.

*JOHN ASHHURST, JR., M. D., LL. D., JOHN RHEA BARTON Professor of Surgery, and Professor of Clinical Surgery.

EDWARD T. REICHERT, M. D., Professor of Physiology.

WILLIAM F. NORRIS, M. D., Professor of Ophthalmology.

BARTON COOKE HIRST, M. D., Professor of Obstetrics.

J. WILLIAM WHITE, M. D., Professor of Clinical Surgery.

JOHN GUITÉRAS, M. D., Professor of General Pathology and Morbid Anatomy.

GEORGE A. PIERSOL, M. D., Professor of Anatomy.

JOHN MARSHALL, M. D., NAT. SC. D., Professor of Chemistry and Toxicology, and DEAN OF THE FACULTY.

LOUIS A. DUHRING, M. D., Professor of Skin Diseases.

CHARLES B. PENROSE, M. D., PH. D., Professor of Gynæcology.

ALEXANDER C. ABBOTT, M. D., PEPPER Professor of Hygiene.

CLINICAL PROFESSORS.

WILLIAM F. NORRIS, M. D., Clinical Professor of Diseases of the Eye.

HORATIO C WOOD, M. D., LL. D., Clinical Professor of Nervous Diseases.

*Absent on leave.

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LOUIS A. DUHRING, M. D., Clinical Professor of Skin Diseases.

DE FOREST WILLARD, M. D., Clinical Professor of Orthopædic Surgery.

B. ALEXANDER RANDALL, M. D., Clinical Professor of Diseases of the Ear.

J. P. CROZER GRIFFITH, M. D., Clinical Professor of Diseases of Children.

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JOHN B. DEAVER, M. D., Assistant Professor of Applied Anatomy.

CHARLES K. MILLS, M. D., Professor of Mental Diseases.

ON THE GEORGE B. WOOD FOUNDATION.

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——— ——— ———, Professor of Botany.

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MARY E. P. DAVIS, Superintendent of the Hospital.
JUDSON DALAND, M. D., Curator.
DAVID B. BIRNEY, M. D., Surgical Anæsthetizer.
JOHN H. GIRVIN, M. D., Gynæcological Anæsthetizer.
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FRANCIS R. PACKARD, M. D., } sary for Diseases of the Throat.

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GEORGE B. WOOD, M. D., } pensary for Genito-Urinary
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WILLIAM B. SMALL, M. D., } Assistant Surgeons in the Dispen-
WILLIAM R. NICHOLSON, M. D., } sary for Diseases of Women.

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WILLIAM EVANS, M. D., } Assistant Physicians in the Dispen-
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HOWARD MELLOR, M. D., Chief Surgeon in the Dispensary for Diseases of the Eye.

CHARLES C. RANKIN, M. D., Assistant Surgeon in the Dispensary for Diseases of the Eye.

MILTON B. HARTZELL, M. D., Chief Physician in the Dispensary for Diseases of the Skin.

CHARLES N. DAVIS, M. D., Assistant Physician in the Dispensary for Diseases of the Skin.

JAMES M. BROWN, M. D., Chief Surgeon in the Dispensary for Diseases of the Ear.

LEVI J. HAMMOND, M. D., Assistant Surgeon in the Dispensary for Diseases of the Ear.

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All communications relating to the Department of Medicine should be addressed to

JOHN MARSHALL, M. D.,
Dean of the Faculty of Medicine,
University of Pennsylvania,
Philadelphia, Pa.

Office, 1 Medical Hall.
Office Hours, 2 P. M., daily.

ORGANIZATION OF THE MEDICAL SCHOOL.

This venerable institution, the oldest Medical School in the United States, was founded in 1765 by Dr. JOHN MORGAN, who filled in it the first medical professorship created in America. In his opening "Discourse upon the Institution of Medical Schools in America," delivered in the College of Philadelphia, May 30, 1765, Dr. MORGAN uttered these prophetic words: "Perhaps this medical institution, the first of its kind in America, though small in its beginning, may receive a constant increase of strength, and annually exert new vigor. It may collect a number of young persons, of more than ordinary abilities, and so improve their knowledge as to spread its reputation to distant parts. By sending these abroad duly qualified, or by exciting an emulation amongst men of parts and literature, it may give birth to other useful institutions of a similar nature, or occasional rise, by its example, to numerous societies of different kinds, calculated to spread the light of knowledge through the whole American continent, wherever inhabited." Through Dr. MORGAN, the pupil of HUNTER in London and of CULLEN in Edinburgh, the graduates of this school take a just pride in regarding it as the lineal descendant of the best medical schools of Great Britain in the last century. To Dr. MORGAN was soon joined another pupil of CULLEN, Dr. WILLIAM SHIPPEN, as Professor of Anatomy and Surgery, thus forming another tie of relationship to the celebrated University of Edinburgh, whose methods of instruction were substantially adopted here. In the next year Dr. ADAM KUHN was added as Professor of Botany and Materia Medica; and in June, 1768, a "Commencement was held," at which medical honors were bestowed, the first in point of time in America. In 1769, Dr. BENJAMIN RUSH was elected Professor of Chemistry, and Dr. THOMAS BOND, Professor of Clinical Medicine.

To the faculty thus composed of MORGAN, SHIPPEN, KUHN, RUSH and BOND, have succeeded, at various times, professors whose reputation has been national, such as BARTON, WISTAR,

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CHAPMAN, PHYSICK, DEWEES, HORNER, HARE, GIBSON, JACKSON, GEORGE B. WOOD, HODGE, JAMES B. ROGERS, CARSON, PEPPER, FRANCIS GURNEY SMITH, NEILL, HENRY H. SMITH, LEIDY, D. HAYES AGNEW, GOODELL, and the younger PEPPER.

The number of graduates of the Department of Medicine is 11,810.

ADMISSION.

Examinations for admission in 1899 will be held in Medical Hall, Thursday, June 15, at 11 A. M., and Friday, September 22, at 11 A. M.*

Candidates for admission by examination to the first-year class in 1899 will be required to register in Medical Hall between 9 and 11 A. M., either on Thursday, June 15, or on Friday, September 22, and to undergo the examinations beginning at 11 A. M. on the same day.*

A. Any candidate who may have received a degree in Arts or Science from a college recognized by this University will be admitted without examination. Students who have satisfactorily pursued the two-year course in Biology of this University will be exempt from the entrance examination. Any candidate who may present written evidence of having passed the entrance examinations of a recognized college, in which the requirements are equivalent to those demanded for entrance to the Freshman Class of the College of this University, will be admitted without examination.

Diplomas of public high schools may be accepted as complete or partial certificates. Candidates who present such diplomas will be referred to Faculty Committee No. 1 of the College Faculty, who will examine each case and decide whether the diplomas shall be accepted in lieu of examinations, and what subjects they properly cover. This privilege is granted tentatively to the public high schools, for the reason that their curricula are adjusted primarily to the needs of students not making a special preparation for Col-

* The following graduates conduct examinations for admission to the first year class in the respective cities in which they reside, during the last week in June. Examinations for admission to *advanced standing* are conducted *only* at the University. Dr. J. L. Rothrock, Lowry Arcade, St. Paul, Minn.; Dr. W. S. Elkin, 70½ Whitehall Street, Atlanta, Ga.; Dr. J. W. Whitbeck, 125 East Avenue, Rochester, N. Y.; Dr. W. T. Bell, 133 Powell Street, San Francisco, Cal.; Dr. Edward Randall, Jr., Galveston, Texas; Dr. F. E. Maine, Auburn, N. Y.; Dr. B. M. Walker, Danville, Va.; Rev. D. McNeill, Charlottetown, P. E. I.; Dr. Benj. B. Cates, Knoxville, Tenn.; Dr. William Seaman, 7 Bowdoin Street, Boston, Mass.; Dr. Paul M. Day, cor. 14th and Warren Avenues, Detroit, Mich.; Dr. G. Clowes Van Wart, Fredricton, N. B.; Dr. J. W. Sherer, New Ridge Building, Kansas City, Mo.; Dr. Gilbert, A. Pfoutz, Mercantile Building, Salt Lake City, Utah.

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lege. The diploma must be transmitted to the Dean of the Medical Faculty, and must be accompanied by a certificate signed by the principal of the school, stating the exact amount of each subject covered by the diploma, and the marks or grades attained in each subject.

B. Candidates for admission to the first-year class, who do not possess the qualifications specified in paragraph **A**, in 1899 will be required to pass examinations in the following subjects:

The requirements as described below cease to be in force after 1899. For the requirements that will be in force in 1900 and thereafter, and that MAY be offered by candidates in 1899 also, see pages 62-67.

ENGLISH.—(A) Grammar.

(B) (1) Shakespeare's *Merchant of Venice.* (2) *Twelfth Night.* (3) Milton's *L'Allegro, Il Penseroso.* (4) *Comus* and *Lycidas.* (5) Longfellow's *Evangeline.* (6) The Sir Roger de Coverley Papers in the *Spectator.* (7) Macaulay's *Essays on Milton and Addison.* (8) Webster's first *Bunker Hill Oration.* (9) Irving's *Sketch Book.* (10) Scott's *The Abbot.*

Or as an alternate:—A *general* knowledge of the following works and their authors: Dryden's *Palamon and Arcite;* Pope's *Iliad,* Books I, VI, XXII, and XXIV; the *Sir Roger de Coverley Papers* in *The Spectator;* Coleridge's *Ancient Mariner;* De Quincey's *Revolt of the Tartars;* Cooper's *Last of the Mohicans;* Lowell's *Vision of Sir Launfal,* and Hawthorne's *House of the Seven Gables.*

A *special* knowledge of the subject-matter, form and structure of the following works: Shakespeare's *Macbeth;* Milton's *Paradise Lost,* Books I and II; Burke's *Speech on Conciliation with America,* and Carlyle's *Essay on Burns.*

Or,

For numbers 2, 4 and 5 of the above may be substituted three of the following:

Darwin, *Origin of Species.*

Huxley, *Physiography; an Introduction to the Study of Nature.*

Tyndall, *Heat as a Mode of Motion.*

George Eliot, *Middlemarch.*

HISTORY.—(A) History of the United States. (As in Eggleston's *History of the United States.*)

(B) Greek and Roman.

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MATHEMATICS.—(B) Algebra (including factoring, fractions, simple equations and simultaneous equations of the first degree).

(C) Algebra (to the end of quadratic equations, including ratio, proportion, arithmetical and geometrical progression, surds and imaginaries).

(D) Plane Geometry.

Additional examinations required:

Either I:—

GREEK.—(A) Greek Grammar.

(B) Greek Prose Composition.

(C) Xenophon (first four books of the *Anabasis*).

(D) Homer (first three books of the *Iliad*, with the prosody).

LATIN.—(A) Latin Grammar.

(B) Latin Prose Composition.

(C) Cæsar (first four books of the *Gallic War*).

(D) Vergil (first six books of the *Æneid*, with the prosody).

(E) Cicero (six orations, including the four against Catiline).

Or II:—

LATIN.—[A, B, C and first *three* books of *Æneid*, with prosody.]

FRENCH.—(A) A thorough knowledge of elementary grammar.

(B) 300 pages of contemporary prose.

GERMAN.—(A) Collar-Eysenbach's *German Lessons*.

(B) 300 pages of contemporary prose.

Two of these languages, and Solid Geometry *or* Physics.

OR, *One* of these languages, and Solid Geometry *and* Physics.

In addition to the requirements for entrance above noted, it is earnestly recommended that young men, before entering upon the study of medicine at this University, should have previously taken the degree either of A. B. or B. S. at some college or university where the standard is equivalent to that of the University of Pennsylvania. Should this be impracticable, two years' time should be devoted to the study of the following branches: chemistry or biology, with laboratory work in each amounting to six hours a week for eight months in each year; mammalian and human anatomy; histology and physiology, including the practical use of the microscope and culture methods in bacteriology. Freehand draw-

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ing is also an important preliminary study. Attention is called to the two-year course in Biology preparatory to Medicine given in the College of this University, as indicating the character and amount of studies advised.

Candidates for admission to the first-year class who, before November 1, present evidence in writing of having had a course in chemistry, and of having performed laboratory work equivalent to that required during the first year in this school, will be permitted, on examination, to omit the chemistry of the first year and to pursue the chemistry and laboratory work of the second year, during the first year of their Medical course.

College graduates in Arts or Science who, during their college course, have devoted to the study of the branches named below the number of hours stated, are admitted to the second year of the Medical course without an entrance examination.* These studies may have been pursued during any period of a college course leading to a degree. Students entering under these conditions are required during their first session in the Department of Medicine to take instruction in Materia Medica and Pharmacy, and to pass examinations in these branches by the end of the session. (At the end of the second year of the Medical course they will be examined in the entire subjects of Anatomy and Physiology.)

General Biology.....	96 hours.	Histology	72 hours.
Mammalian Anatomy	96 "	Human Anatomy....	144 "
Botany	96 "	Physiology	72 "
Chemistry	216 "	Zoölogy	96 "
Physics	72 "	Embryology	48 "

Students who have attended one course in a recognized medical school (not Homœopathic or Eclectic) in which the annual session is not less than eight months in length, are admitted to the second year of the University course, upon passing a satisfactory examination in *General Chemistry, Materia Medica* and *Pharmacy, Elementary Anatomy, with especial reference to Histology, Osteology* and *Myology, Physiology, excepting Heat Mechanism and the Nervous System,* and in the elements of *General Pathology.* Students who have attended two courses in a recognized regular medical school in which the annual session is not less than eight months in length, are admitted to the third-year class upon passing a satisfactory examination in *General* and *Medical Chemistry, Ma-*

* Blanks covering the requirements may be obtained of the Dean.

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teria Medica and *Pharmacy*, the elements of *General Pathology*, and the entire subjects of *Anatomy* and *Physiology*. Students who have attended three courses in a recognized regular medical school, in which the annual session is not less than eight months in length, are admitted to the fourth-class year upon passing a satisfactory examination in *General* and *Medical Chemistry, Materia Medica* and *Pharmacy*, the elements of *General Pathology*, the entire subjects of *Anatomy* and *Physiology, Applied Anatomy, General* and *Special Pathological Anatomy, Therapeutics, Surgery*, and *Obstetrics*. Graduates of recognized regular medical schools, in which the annual session is not less than eight months in length, and in which four years' attendance upon instruction is required to obtain the degree in Medicine, are admitted to the fourth-year class with the understanding that they pass examinations in *Obstetrics, Therapeutics* and in *Pathology*, either at the beginning or at the end of the fourth year, in addition to the regular examinations of that year. Examinations in these subjects which may have been passed at other colleges or universities will not be accepted in lieu of the foregoing requirements. Candidates for admission to advanced standing who have not received a collegiate degree, or passed the examination for admission to the Freshman Class of a recognized college, will be required to pass the examination required of candidates for admission to the first-year class, in addition to the examination in the subjects named above.

Examinations for admission to advanced standing for the session 1899-1900 will be held in Medical Hall on Monday, September 25, at 10 A. M.*

COURSE OF STUDY.

The course of instruction extends over four years, with one session beginning the first of October (or the second, if the first fall on Sunday) and ending on the second Wednesday in June each year.

The FIRST YEAR is largely occupied with work in the various laboratories of Chemistry, Physiology, Pharmacy, Osteology and Histology, and in Dissection. The first-year student may also attend clinical lectures in General Medicine and General Surgery. In the

* Students from other colleges admitted to the second-year class, who have not had instruction in Practical Normal Histology, will be required to make up such deficiency by taking a special course. Students admitted to the third-year class will be required to make up deficiencies in Practical Normal Histology, and in Practical Pathological Histology.

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SECOND YEAR, in addition to didactic and clinical teaching, practical instruction is given in Medical Chemistry, Physiology, Pathological Histology, Practical Bacteriology and Physical Diagnosis. Dissection is continued. Throughout the SECOND, THIRD and FOURTH years, the student is required to attend the general medical and surgical clinics at the University and Philadelphia Hospitals; and during the THIRD and FOURTH years the clinics in special departments at the former. Special bedside instruction in Clinical Medicine, including Physical Diagnosis, and in Clinical Surgery, is given in the third year. During the FOURTH year, in addition to special bedside instruction in Clinical Medicine, in Clinical Surgery, and in Gynæcology, practical instruction is given in Operative Surgery and Operative Obstetrics. For the foregoing purpose, the THIRD- and FOURTH-year classes are divided into sections, each of which receives direct personal instruction.

At the beginning of the fourth year, each member of the fourth-year class will be required to select from the following elective branches, one major or two minor branches, and pursue the study of the branch or branches as special studies. Major Electives: Nervous Diseases and Electro-Therapeutics, Skin Diseases, Advanced Hygiene (including Bacteriology), Laryngology and Rhinology, and Pharmacodynamics. Minor Electives: Orthopædic Surgery, Ophthalmology (including Ophthalmoscopy), Otology, Genito-Urinary Surgery, Advanced Anatomy, Advanced Physiology, Advanced Pathology, Advanced Medical Chemistry (including Toxicology), Pædiatrics, Experimental Psychology, Medical Jurisprudence. At the end of the fourth year the student will be examined in the special branch or branches selected in addition to the regular examinations of that year.

The course of instruction is so arranged as to permit the constant introduction of new material, while retaining the repetition of essential subjects aimed at by the older method. The laboratory instruction is so co-ordinated with the oral teaching as to illustrate the subjects of the lectures.

Advanced students are encouraged to make original researches in the laboratories of Pharmacy, Chemistry, Physiology, Pathology and Pharmacodynamics.

Students of the Department of Medicine may attend, without additional charge, the lectures and recitations in any other department of the University. This privilege can be obtained only by the student presenting a note from the Dean of the Medical Faculty to the Dean of any other faculty, endorsing his application.

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OUTLINE OF THE COURSE.

FIRST YEAR.

Anatomy.—Four lectures per week, eight hours per week dissection, including Osteology, during a period of eight weeks.

Histology.—Two hours per week laboratory instruction, with occasional demonstrations.

Materia Medica and Pharmacy.—One lecture per week before February 1. Two lectures per week after February 1, and six hours per week laboratory, during a period of four months.

General Chemistry.—Two lectures per week, three hours per week laboratory.

Physiology.—Four lectures per week.

General Pathology.—One lecture per week.

History of Medicine, Medical Terminology, Ethics, etc.—One lecture per week before February 1.

Physical Diagnosis.—One lecture per week.

General Symptomatology and Diagnosis.—One lecture per week.

Bandaging.—One lecture per week, four hours per week practice during a period of four weeks.

Practical Physiology.—Two hours per week laboratory instruction.

General Clinics.—Medical and Surgical.

Final examinations at the end of the first year: General Chemistry, Elementary Anatomy (with special reference to Histology, Osteology and Myology), Physiology (except the Heat Mechanism and the Nervous System), Materia Medica and Pharmacy, and Elements of General Pathology.

SECOND YEAR.

Anatomy.—Two lectures per week, ten hours per week dissection during a period of eight weeks.

Medical Chemistry.—One lecture per week, three hours per week laboratory.

Physiology.—Two lectures per week.

General Pathology and Morbid Anatomy.—Two lectures per week, ten hours per week laboratory.

Physical Diagnosis.—Three hours per week demonstrations during a period of eight weeks.

Therapeutics.—Two lectures per week.

Surgery.—Three lectures per week.

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Obstetrics.—Two lectures per week.

Bacteriology.—One lecture per week.

Practical Bacteriology.—Ten hours per week laboratory during a period of four weeks.

Practical Physiology.—Two hours per week laboratory instruction.

General Clinics, Medical and Surgical, including Philadelphia and Pennsylvania Hospital clinics.

Special Clinics.—(Nervous Diseases, Gynæcology, Diseases of Skin, Eye, Ear, alternating with practical work in Physical Diagnosis and in Pathological Histology.)

Final examinations at the end of the second year: Medical Chemistry, Anatomy (including Embryology), Physiology, and Physical Diagnosis.

THIRD YEAR.

Applied Anatomy.—Two lectures per week.

General Pathology and Morbid Anatomy.—Two lectures per week.

Demonstrations in Morbid Anatomy, including Autopsies.—Two hours per week.

Therapeutics.—Two lectures per week.

Demonstrations in Pharmacodynamics.—One hour per week before February 1.

Theory and Practice of Medicine.—Three lectures per week.

Clinical Medicine.—Two clinical lectures per week, one hour per week bedside instruction, including Physical Diagnosis.*

Surgery.—Three lectures per week.

Clinical Surgery.—One clinical lecture per week, one hour per week bedside instruction.†

Minor Surgery and Fracture Dressing.—One lecture per week before February 1. One hour per week practice before February 1.

Obstetrics.†—Three lectures per week.

Skin Diseases.—One didactic lecture per week, one clinical lecture per week before February 1.

Otology.—One didactic lecture per week before February 1. One hour per week clinical lecture.

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* For these courses the class is divided into sections, so that each student shall receive direct personal instruction.

† Students also receive individual practical instruction in pelvimetry and abdominal palpation, in addition to the lectures on Obstetrics.

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Laryngology.—One didactic lecture per week after February 1.

Genito-Urinary Diseases.—One clinical lecture per week after February 1.

General Clinics, Medical and Surgical, including Philadelphia and Pennsylvania Hospital clinics.

Special Clinics.—(Nervous Diseases, Pædiatrics, Gynæcology, Diseases of the Skin, Eye, Ear, at both University and Philadelphia Hospitals.)

Final examinations at the end of the third year: Applied Anatomy, General and Special Pathological Anatomy, Therapeutics, Surgery, and Obstetrics.

FOURTH YEAR.

Theory and Practice of Medicine.—Three lectures per week.

Clinical Conference in Medicine.—One hour per week.

Clinical Medicine.—Two clinical lectures per week, one hour per week bedside instruction.

Laryngology and Rhinology.—One didactic lecture per week after February 1.

Clinical Surgery.—Two clinical lectures per week, one hour per week bedside instruction.

Operative Surgery.—One lecture per week after February 1, three hours practical instruction after February 1.

Operative Obstetrics.—One hour per week practical instruction.

Nervous Diseases and Electro-Therapeutics.—One clinical lecture per week.

Hygiene.—One lecture per week.

Gynæcology.—One clinical lecture per week, one hour per week practical instruction.

Pædiatrics.—One clinical lecture per week before February 1.

Skin Diseases.—One didactic lecture per week, one clinical lecture per week before February 1.

Genito-Urinary Diseases.—One hour per week after February 1.

Otology.—One didactic lecture per week before February 1, one clinical lecture per week throughout the year.

Ophthalmology.—One didactic lecture per week, one hour per week clinical lecture.

Autopsies.—One hour per week practical instruction.

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Clinical and Operative Obstetrics.—One hour per week practical instruction.

Orthopædic Surgery.—One clinical and didactic lecture per week.

General Clinics, Medical and Surgical, including Philadelphia and Pennsylvania Hospital clinics.

CLINICAL ELECTIVES.

Nervous Diseases and Electro-Therapeutics.—Two hours per week practical instruction for at least one-half the session.

Skin Diseases.—Two hours per week practical instruction for at least one-half the session.

Laryngology and Rhinology.—Two hours per week practical instruction for at least one-half the session.

Otology.—One hour per week practical instruction for at least one-half the session.

Ophthalmology, including Ophthalmoscopy.—One hour per week practical instruction for at least one-half the session.

Orthopædic Surgery.—One hour per week practical instruction for at least one-half the session.

Genito-Urinary Surgery.—One hour per week practical instruction for at least one-half the session.

Pædiatrics.—One hour per week practical instruction for at least one-half the session.

Final examination in Skin Diseases will be held about February 1. Final examinations at the end of the fourth year: Theory and Practice of Medicine, Clinical Medicine, Operative Surgery, Clinical Surgery, Operative Obstetrics, Gynæcology and Hygiene, Ophthalmology. The examinations include questions on Diseases of the Ear, Children's Diseases, and Neurology, from lists furnished by the Clinical Professors of those branches. In addition, the student will be examined in one of the following major electives, or two of the minor electives, which he must have elected as a special study or studies at the beginning of the fourth year. Major Electives: Nervous Diseases and Electro-Therapeutics, Skin Diseases, Advanced Hygiene (including Bacteriology), Laryngology and Rhinology, and Pharmacodynamics. Minor Electives: Orthopædic Surgery, Ophthalmology (including Ophthalmoscopy), Otology, Genito-Urinary Surgery, Advanced Anatomy, Advanced Physiology, Advanced Pathology, Advanced Medical Chemistry (including Toxicology), Pædiatrics, Experimental Psychology, Medical Jurisprudence.

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TEXT-BOOKS.

FIRST YEAR.

Text-Books.	Collateral Reading.
Chemistry: Richter's Inorganic Chemistry; Medicus' Qualitative Analysis. (Fourth edition.)	Wurtz's Elements of Modern Chemistry.
Anatomy: Leidy; Holmes' Outlines of Anatomy; Piersol's Normal Histology.	Gray; Morris; Stöhr's Histology.
Physiology: American Textbook of Physiology.	
Pathology:	Abbott's Principles of Bacteriology; Leidy's Anatomy; Foster's Physiology.
Physical Diagnosis: Tyson.	
Materia Medica: H. C Wood; Mann on Prescription Writing.	United States Dispensatory.

SECOND AND THIRD YEARS.

Medical Chemistry: Remsen's Organic Chemistry; Tyson's Practical Examination of Urine.	Wormley's Micro-chemistry of Poisons, 2d edition.
Anatomy: Leidy; Holmes' Outlines of Anatomy.	Gray; Morris; Quain; Foster and Balfour's Elements of Embryology.
Physiology: American Textbook of Physiology.	
General Pathology and Morbid Anatomy: Ziegler; Woodhead's Practical Pathology; Abbott's Principles of Bacteriology.	Cohnheim's Lectures on General Pathology; Pepper's System of Practical Medicine by American Authors; Sternberg's Manual of Bacteriology; Halliburton's Chemical Physiology and Pathology.
Therapeutics: H. C Wood.	United States Dispensatory.

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Text-Books.	Collateral Reading.
Surgery: Ashhurst's Principles and Practice of Surgery; Agnew's Surgery.	Ashhurst's International Encyclopædia of Surgery; Wharton's Minor Surgery and Bandaging; Davis on Bandaging; Young's Orthopædic Surgery.
Clinical Surgery: An American Text-book of Surgery; Agnew's Surgery.	Treves' Operative Surgery; Martin's Essentials of Surgery and Bandaging.
Obstetrics: The American Textbook of Obstetrics.	Hirst's System of Obstetrics; Lusk's Midwifery; Barnes' Obstetrics.
Physical Diagnosis: Tyson.	
Skin Diseases: Duhring; Crocker; Hyde.	

THIRD AND FOURTH YEARS.

Practice of Medicine: A Textbook of Medicine, edited by Pepper; Osler; Strümpel. Musser's Medical Diagnosis.	Pepper's System of Practical Medicine; Stillé & Maisch's Dispensatory; Tyson on Bright's Disease and Diabetes; Seiler's Diseases of Throat and Nose.
Clinical Medicine: Tyson's Textbook of Medicine.	
Nervous Diseases: Section on Nervous Diseases in the Practice of Medicine by Wood & Fitz.	Mill's Diseases of the Brain and Cranial Nerves, with a General Introduction on the Study and Treatment of Nervous Diseases.
Surgery: Ashhurst's Principles and Practice of Surgery; Agnew's Surgery.	Ashhurst's International Encyclopædia of Surgery; Wharton's Minor Surgery and Bandaging; Davis on Bandaging: Young's Orthopædic Surgery.
Clinical Surgery: An American Text-book of Surgery; Agnew's Surgery.	Treves' Operative Surgery; Martin's Essentials of Surgery and Bandaging.

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Text-Books.	Collateral Reading.
Obstetrics: Hirst's Text-book of Obstetrics; The American Text-book of Obstetrics.	Hirst's System of Obstetrics; Lusk's Midwifery; Barnes' Obstetrics.
Gynæcology: Penrose's Text-book of Diseases of Women.	Hart and Barbour's Manual of Gynæcology; an American Text-book of Gynæcology.
Diseases of Children: Ashby and Wright; Holt; Rotch.	J. Lewis Smith; American Text-book of the Diseases of Children; Cyclopædia of Diseases of Children.
Medical Jurisprudence:	Reese's Medical Jurisprudence; Herold's Legal Medicine; Taylor's Medical Jurisprudence.
Skin Diseases: Duhring; Crocker; Hyde.	
Ophthalmology: Norris and Oliver's Text-book of Diseases of the Eye.	
Hygiene: Notter & Firth's Treatise on Hygiene.	Billings' Ventilation and Heating; Abbott's Principles of Bacteriology.

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ORDER OF INSTRUCTION, DAILY.—FIRST YEAR.—1898-9.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
9 A. M.						
10 A. M.	**Marshall.** Gen. Chemistry.	**Marshall.** Gen. Chemistry.	Chemical Laboratory. Three hours.	**Mitchell.** Gen. Symp., Diag.	**Miller.** Materia Medica.	Phila. or Penna. Hosp. Med. and Surgical Clinics.
11 A. M.	**Daland.** Phys. Diagnosis.†	**Harte.** Osteol., Syndes'l.		**Guiteras.** Gen. Pathology.	History of Med., Med. Terminol., Ethics, etc.	
12 M. to 2 P. M.	Class divided into sections for Pract. Work in Histology, Physiology, Dissecting, Bandaging (before Feb. 1st), Pharmacy (after Feb. 1st). See Spec. Roster.	Class divided into sections for Pract. Work in Histology, Physiology, Dissecting, Bandaging (before Feb. 1st), Pharmacy, (after Feb. 1st). See Spec. Roster.	Class divided into sections for Pract. Work in Histology, Physiology, Dissecting, Bandaging (before Feb. 1st), Pharmacy (after Feb. 1st). Clinics. See Spec. Roster.	Class divided into sections for Pract. Work in Histology, Physiology, Dissecting, Bandaging (before Feb. 1st), Pharmacy (after Feb. 1st). See Spec. Roster.	Class divided into sections for Pract. Work in Histology, Physiology, Dissecting, Bandaging (before Feb. 1st), Pharmacy (after Feb. 1st). See Spec. Roster.	Class divided into sections for Pract. Work in Histology, Physiology, Dissecting, Bandaging (before Feb. 1st), Pharmacy (after Feb. 1st). Clinics. See Spec. Roster.
3½ P. M.	**Piersol.** Anatomy.	**Piersol.** Anatomy.	**Wharton.** Bandaging Lec., before Dec. 22. **Harte.** Osteol. & Syndes. after Jan. 1st.	**Piersol.** Anatomy.	**Piersol.** Anatomy.	
4½ P. M.	**Reichert.** Physiology.	**Reichert.** Physiology.	**Miller.** Materia Medica, after Jan. 1st.	**Reichert.** Physiology.	**Reichert.** Physiology.	
5½ P. M.						

† University Hospital.

ORDER OF INSTRUCTION, DAILY.—SECOND YEAR.—1898-9.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
9 A. M.						
10 A. M.		**Guiteras.** Pathology.	Phila. or Penna. Hosp. Med. and Surgical Clinics.	**Marshall.** Medical Chem.	**Guiteras.** Pathology.	Medical Chemistry Laboratory, Three hours.
11 A. M.	**Guiteras.** Bacteriology.	**Ashhurst.** Surgery.		**Ashhurst.** Surgery.	**Ashhurst.** Surgery.	
12 M. to 2 P. M.	Class divided into sections for Pract. Work in Pathology, Physiology, Dissecting, Bacteriology, Physical Diag. Clinic. See Spec. Roster.	Class divided into sections for Pract. Work in Pathology, Physiology, Dissecting, Bacteriology, Physical Diag. See Spec. Roster.	Class divided into sections for Pract. Work in Pathology, Physiology, Dissecting, Bacteriology, Physical Diag. Gynæcolog. and Gen. Surgical† Clinics. See Spec. Roster.	Class divided into sections for Pract. Work in Pathology, Physiology, Dissecting, Bacteriology, Physical Diag. Clinic. See Spec. Roster.	Class divided into sections for Pract. Work in Pathology, Physiology, Dissecting, Bacteriology, Physical Diag. Clinic. See Spec. Roster.	Class divided into sections for Pract. Work in Pathology, Physiology, Dissecting, Bacteriology, Physical Diag. Gen. Med. and Surgical† Clinics. See Spec. Roster.
3½ P. M.	**Piersol.** Anatomy.	**Hirst.** Obstetrics.		**Hirst.** Obstetrics.	**Piersol.** Anatomy.	
4½ P. M	**Reichert.** Physiology.	**Musser.** Phys. Diagnosis.		**Wood.** Therapeutics.	**Reichert.** Physiology.	
5½ M. P.					**Wood.** Therapeutics.	

University Hospital.

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ORDER OF INSTRUCTION, DAILY.—THIRD YEAR.—1898-9.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A. M.			Phila. Hospital. Gynæcol. Clinic.		Dem. in Morb. Anat., Section.	Phila. Hospital. Gynæcol. Clinic.
10 A. M.	Dem. in Morb. Anat., Section.	**Guiteras.** Pathology.	Phila. or Penna. Hosp. Medical and Surgical Clinics.	Dem. in Morb. Anat., Section.	**Guiteras.** Pathology.	Phila. or Penna. Hosp., Medical and Surgical Clinics.
11 A. M.	Dem. in Pharmacodynamics, ½ the Class, before Feb. 1.	**Ashhurst.** Surgery.		**Ashhurst.** Surgery.	**Ashhurst.** Surgery.	
12 M.	**Deaver.** Appl. Anatomy.		**Wood.** Clin. Nerv. Dis.†	**Tyson.** Medical Clinic.†	**Deaver.** Appl. Anatomy.	Med. Clin.†
1 P. M.	**Randall.** Clin. Dis. of the Ear.† Ward Classes. Med. and Surg.†	Ward Classes, Med. and Surg.†	**White.** Surgical Clinic.†	**Norris.** Clin. Dis. of the Eye.† Ward Classes, Surg.†	**Duhring.** Clin. Dis. of the Skin,† before Feb. 1. Ward Classes, Med.†	**Ashhurst.** Surgical Clinic.
3½ P. M.	**Martin.** Genito-Urin. Dis. after Feb. 1.† **Wharton.** Minor Surgery. Lecture before Feb. 1.	**Hirst.** Obstetrics.	Dem. in Pharmacodynamics, ½ the Class, before Feb. 1.	**Hirst.** Obstetrics.	**Randall.** Didac. Otology before Feb. 1	
4½ P. M.	**Wharton.** Frac. Dressing. Two secs., Prac., before Feb. 1.		**Duhring.** Didac. Skin Dis. before Feb. 1.	**Wood.** Therapeutics.	**Wharton.** Frac. Dress., Two sec. Prac. before Feb. 1. Didac. Laryn. before Feb. 1.	
5½ P. M.	Medicine.	Medicine.	**Hirst.** Obstetrics.	Medicine.	**Wood.** Therapeutics.	

For Ward Class instruction and Obstetrical Demonstrations the Third-year Class is divided into sections. SEE SPECIAL ROSTER. † University Hospital.

ORDER OF INSTRUCTION, DAILY.—FOURTH YEAR.—1898-9.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9 A. M.			Phila. Hospital, Gynæcol. Clinic.			Phila. Hospital Gynæcol. Clin.
10 A. M.			Phila. or Penna. Hos., Med. and Surg. Clinics.	**Mills.** Ment. and Nerv. Dis. and Med. Juris. before Feb. 1.	**Abbott.** Hygiene.	Phila. or Penna. Hos., Med. and Surg. Clinics.
11 A. M.	Autopsies before Feb. 1. **Ashhurst.** Op. Sur., Lec. after Feb. 1.			**Griffith.** Dis. of Children† before Feb. 1.	**Hirst.** Operat. and Clin. Obstetrics.†	
12 M.	Pract. Gynæcol.†	Pract. Gynæcol.†	**Wood.** Clinic, Nerv. Diseases.†	**Tyson.** Med. Clinic.† Pract. Gynæcol.†	**Stahl.** Dietetics of the Sick, before Feb.1	Med. Clin.†
1 P. M.	**Randall.** Ear Clin.† Ward Classes in Surg.†	Ward Classes in Surg.†	**White.** Surgical Clinic.†	**Norris.** Eye Clin.† Ward Classes in Surg.†	**Penrose.** Gynæcol., Clin.† **Duhring.** Skin Clin., before Feb. 1.†	**Ashhurst.** Surg. Clinic.†
3½ P.M.	**Martin.** Genito-Urin. Dis., after Feb. 1.† **Mills.** Med. Juris. before Feb. 1.	**Willard.** Orthop. Surg. Clin. and Didac.†	Ward Classes in Med. 3 P. M.	Ward Classes in Med. 3 P. M.	**Randall.** Didac. Otology, before Feb. 1,† Ward Classes in Med. 3 P. M.	
4½ P.M.	**Wharton.** Oper. Surg., after Feb. 1, Sections. Clin. Conf. in Med. before Feb. 1.†	**Norris.** Didac. Ophthalmol.†	**Duhring.** Didac. Skin Dis. before Feb. 1. Clin. Conf. in Med. after Feb. 1.†	**R. C. Norris.** Operative Obstetrics, Sections.	Didac. Laryn., before Feb. 1. **Wharton.** Oper. Surgery, after Feb. 1, Sections.	
5½ P.M.	Medicine.	Medicine.		Medicine.		

For Ward Class instruction and Demonstrations the Fourth-year Class is divided into sections. See SPECIAL ROSTERS for Sections of Class. † University Hospital.

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FOURTH-YEAR CLASS.

ROSTER

OF WARD CLASS INSTRUCTION FOR STUDENTS OF THE FOURTH-YEAR CLASS. SESSION 1898–99.

For attendance upon the course in Clinical Medicine, the Fourth-Year Class is divided into *three sections*, A, B and C, which are further divided into seven sub-sections, the names of the members of which will be posted on the Bulletin Board two days before the beginning of each period.

First Period, from Wednesday, October 12, to Friday, November 11.
Second Period, from Friday, November 11, to Friday, December 9.
Third Period, from Friday, December 9, to Friday, January 13.
Fourth Period, from Friday, January 13, to Friday, February 10.
Fifth Period, from Friday, February 10, to Friday, March 10.
Sixth Period, from Friday, March 10, to Friday, April 7.
Seventh Period, from Friday, April 7, to Friday, May 5.

For attendance upon the courses in Clinical Surgery and in Practical Gynæcology, the fourth-year class is divided into *four sections*, A, B, C and D, which attend as follows:

First Period, from Monday, October 10, to November 26, inclusive.

	Mon.	Tue.	Thur.
Clinical Surgery	A	C	B
Practical Gynæcology	B	A	D

Second Period, from Monday, November 28, to January 21, inclusive.

Clinical Surgery	B	A	D
Practical Gynæcology	C	D	A

Third Period, from Monday, January 23, to March 11, inclusive.

Clinical Surgery	C	D	A
Practical Gynæcology	D	B	C

Fourth Period, from Monday, March 13, to April 29, inclusive.

Clinical Surgery	D	B	C
Practical Gynæcology	A	C	B

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THIRD-YEAR CLASS.

ROSTER

OF BEDSIDE INSTRUCTION AND SPECIAL CLINICS FOR STUDENTS OF THE THIRD YEAR. SESSION 1898–99.

For attendance upon these Courses, the Third-Year Class is divided into *four sections*, A, B, C and D, which attend as follows:

First Period, from Monday, October 10, to November 26, inclusive.

	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.
Medicine	B	D	—	—	A	—
Surgery	D	A	—	B	—	—

Second Period, from Monday, November 28, to January 21, inclusive.

Medicine	C	B	—	—	D	—
Surgery	A	C	—	B	—	—

Third Period, from Monday, January 23, to March 11, inclusive.

Medicine	D	A	—	—	C	—
Surgery	B	C	—	D	—	—

Fourth Period, from Monday, March 13, to April 29, inclusive.

Medicine	A	C	—	—	B	—
Surgery	C	D	—	A	—	—

SECOND-YEAR CLASS.

SPECIAL ROSTER OF PRACTICAL WORK.

Hours from 12 to 2 daily.

THE CLASS IS DIVIDED INTO THREE SECTIONS, DESIGNATED A, B, C.

	Mon.	Tue.	Wed.	Thur.	Fri.	Sat.	
Pathology	—	A	A	A	A	A	First period of 28 working days, from Oct. 10 to Nov. 10 inclusive.
Physiology	A	B	C	—	—	—	
Dissection	B	—	B	B	B	B	
Bacteriology	C*	C*	—	C*	C*	C*	
Physical Diag.,	C**	C**	—	C**	—	—	
Clinics	—	—	—	—	C**	C**	

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Pathology . .	—	A	A	A	A	A	Second period of 28 working days, from Nov. 11 to Dec. 16 inclusive.
Physiology . .	A	B	C	—	—	—	
Dissection . .	C	C	—	C	C	C	
Bacteriology .	B**	—	B**	B**	B**	B**	
Physical Diag.,	B*	—	—	B*	B*	—	
Clinics	—	—	B*	—	—	B*	

Pathology . .	B	—	B	B	B	B	Third period of 28 working days, from Dec. 17 to Jan. 26 inclusive.
Physiology . .	A	B	C	—	—	—	
Dissection . .	—	A	A	A	A	A	
Bacteriology .	C**	C**	—	C**	C**	C**	
Physical Diag.,	C*	—	—	C*	C*	—	
Clinics	—	—	—	—	—	C*	

Pathology . .	B	—	B	B	B	B	Fourth period of 28 working days, from Jan. 27 to March 1 inclusive.
Physiology . .	A	B	C	—	—	—	
Dissection . .	C	C	—	C	C	C	
Bacteriology .	—	A**	A**	A**	A**	A**	
Physical Diag.,	—	A*	—	A*	A*	—	
Clinics	—	—	A*	—	—	A*	

Pathology . .	C	C	—	C	C	C	Fifth period of 28 working days, from March 2 to April 5 inclusive.
Physiology . .	A	B	C	—	—	—	
Dissection . .	—	A	A	A	A	A	
Bacteriology .	B*	—	B*	B*	B*	B*	
Physical Diag.,	B**	—	B**	B**	—	—	
Clinics	—	—	—	—	B**	B**	

Pathology . .	C	C	—	C	C	C	Sixth period of 28 working days, from April 6 to May 8 inclusive.
Physiology . .	A	B	C	—	—	—	
Dissection . .	B	—	B	B	B	B	
Bacteriology .	—	A*	A*	A*	A*	A*	
Physical Diag.,	—	A**	A**	A**	—	—	
Clinics	—	—	—	—	A**	A**	

* First half of the section.

** Second half of the section.

In Bacteriology each half of the main section is further sub-divided into two sub-sections. The first sub-section will attend in the Bacteriological Laboratory during the first half of the 28 day period, and the second sub-section will attend during the second half of the 28 day period.

For hours of Clinics see General Rosters of Third and Fourth years.

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FIRST-YEAR CLASS.

SPECIAL ROSTER OF PRACTICAL WORK.

Hours from 12 to 2 daily.

THE CLASS IS DIVIDED INTO THREE SECTIONS, DESIGNATED A, B, C.

	Mon.	Tue	Wed.	Thur.	Fri.	Sat.	
Histology . . .	—	—	—	A	B	C	First period of 28 working days, from Oct. 10 to Nov. 10 inclusive.
Physiology . .	—	—	—	B	C	A	
Dissection . .	A	A	A	—	A	—	
Bandaging . .	B	B	—	—	—	—	
Clinics	C	C	BC	C	—	B	
Histology . . .	—	—	—	A	B	C	Second period of 28 working days, from Nov. 11 to Dec. 16 inclusive.
Physiology . .	—	—	—	B	C	A	
Dissection . .	B	B	B	—	—	B	
Bandaging . .	C	C	—	—	—	—	
Clinics	A	A	AC	C	A	—	
Histology . . .	—	—	—	A	B	C	Third period of 28 working days, from Dec. 17 to Jan. 26 inclusive.
Physiology . .	—	—	—	B	C	A	
Dissection . .	C	C	C	C	—	—	
Bandaging . .	A	A	—	—	—	—	
Clinics	B	B	AB	—	A	B	

Between these periods instruction in Bandaging ends and instruction in Pharmacy begins.

Histology . . .	—	—	—	A	B	C	Fourth period of 28 working days, from Jan. 27 to March 1 inclusive.
Physiology . .	—	—	—	B	C	A	
Pharmacy . .	B	B	B	—	—	—	
Dissection . .	A	A	A	—	A	—	
Clinics	C	C	C	C	—	B	
Histology . . .	—	—	—	A	B	C	Fifth period of 28 working days, from March 2 to April 5 inclusive.
Physiology . .	—	—	—	B	C	A	
Pharmacy . .	C	C	C	—	—	—	
Dissection .	B	B	B	—	—	B	
Clinics	A	A	A	C	A	—	
Histology . . .	—	—	—	A	B	C	Sixth period of 28 working days, from April 6 to May 8 inclusive.
Physiology . .	—	—	—	B	C	A	
Pharmacy . .	A	A	A	—	—	—	
Dissection . .	C	C	C	C	—	—	
Clinics	B	B	B	—	A	B	

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GRADUATION.

At the end of the fourth year, a student who has satisfactorily passed all the required examinations receives the degree of Doctor of Medicine under the following conditions:

I. He must be 21 years of age, and of good moral character.

II. He must have passed satisfactory examinations in all of the required branches of the curriculum, must have attended the practical instruction in all departments, and his last year of instruction must have been at this school.

III. He must have attended at least one case of Obstetrics.

IV. After receiving notice of having successfully passed the final examination, he must enter his name on the Register of Candidates for the Degree.

V. He must be present at Commencement, unless excused by the Dean of the Faculty.

ARRANGEMENT OF SESSION.

The Academic Year consists of one session, beginning on October 1, and ending at Commencement on the second Wednesday in June.

The session of 1899-1900 will begin on Monday, October 2, 1899, and will end on Wednesday, June 13, 1900.

TUITION FEES AND EXPENSES.

All tuition fees are payable to JOHN MARSHALL, DEAN. The tuition fee of $200 each year is *on condition that it is paid before November 1.* If paid on or after November 1, the fee will be $205 for the year. If a division of payments is desired, $105 are to be paid before November 1, and $100 before February 1.

The Department of Medicine of the University of Pennsylvania is recognized by the Royal College of Physicians, London, and by the Royal College of Surgeons, England, to the extent that its graduates are exempt from the first examination, and admitted to the second and third examinations of the joint examining board, upon the following basis:

They must exhibit their diploma, together with evidence of having passed an approved preliminary examination in general education; and they must also present evidence of five years' professional study, and certificates to show that the curriculum required by the examining board has been substantially fulfilled.

Graduates of the Department of Medicine of the University of Pennsylvania are also admitted, on presentation of the diploma and certificates to verify the curriculum, together with evidence of a satisfactory preliminary examination or degree in Arts, to the final examination for the triple qualification of the Royal Colleges of Physicians and Surgeons of Edinburgh, and Faculty of Physicians and Surgeons of Glasgow.

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At least twenty-five dollars must be paid on account of tuition before the student will be admitted to the Chemical Laboratory.

Under no circumstances are any changes made in the established fees. The only free scholarships granted are those under the regulations hereinafter referred to.

At the beginning of the first and second years, each student is required to make a deposit of $5 with the Professor of Chemistry, to cover breakage in the chemical laboratories. Any balance remaining at the end of the session is returned.

Board may be obtained near the University for $5 per week upwards.

First Year.

Matriculation Fee..... $5 00
For General Tuition Ticket, admitting to all the lectures, and including all the laboratory work and dissection assigned to this year..... $200 00
Dissecting Material.....$1 per part.

Second Year.

For General Tuition Ticket, admitting to all the lectures, and including all the laboratory work and dissection assigned to this year..... $200 00
Dissecting Material.....$1 per part.

Third Year.

For General Tuition Ticket, admitting to all the lectures, and practical work assigned to this year..... $200 00

Fourth Year.

For General Tuition Ticket, admitting to all the lectures, and the Practical courses of this year required for graduation (no graduation fee)..... $200 00
Material for operations in Surgery.....$1 per part.

FEES FOR SPECIAL COURSES.

(*Students taking special or partial courses, if not already matriculated, or if not graduates of the School, are required to pay the matriculation fee in addition to the fees named below.*)

For any single course of Lectures, except Materia Medica....$20 00
For the course of lectures on Materia Medica..... 10 00
For Practical Course in the Chemical Laboratory..... 25 00
For the course in Practical Gynæcology of the fourth year.. 25 00
For any one of the remaining Practical courses..... 15 00

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Graduates of the School are admitted to the *lectures* free of charge; but they are required to pay the fees for any practical courses they may take.

SCHOLARSHIPS.

A competitive examination of candidates to fill three free scholarships is held annually. (In 1899, on Saturday, September 23, at 10 A. M., in Medical Hall.) Each candidate will be required:

First. To furnish satisfactory evidence in writing, from three reputable persons, that he is without means to defray the expenses of a medical education.

Second. To write a brief autobiography, of about 300 words in length, which will serve as a test of his qualifications in orthography and grammar.

Third. To undergo examinations in the following subjects:

(*a*) Latin (first book of Horace's *Odes*).

(*b*) Greek (first four books of the *Iliad*). The examination will include prosody, syntax and Homeric dialect.

(*c*) Physics.

(*d*) Solid Geometry.

(Candidates who do not possess the qualifications specified in paragraph **A**, p. 243, will in addition be required to pass the examinations for admission to the First-year Class.)

Fourth. To pay an examination fee of $5, which is not returned, but is accepted as the matriculation fee in case the candidate is successful.

The application of candidates who propose presenting themselves for examination, together with the certificates demanded by the first requirement of the competition, must be in the hands of the Dean *before September 15.* This requirement having been complied with, candidates will appear without further notice at the time stated for examination.

FACILITIES FOR INSTRUCTION.

The instruction in the Department of Medicine is conducted in the MEDICAL HALL, the LABORATORY BUILDING, the HOSPITAL OF THE UNIVERSITY, MATERNITY PAVILIONS, WISTAR INSTITUTE OF ANATOMY AND BIOLOGY, and the LABORATORY OF HYGIENE.

The Medical Hall contains the Laboratories of Histology, Osteosyndesmology, Pathology and Pharmacy.

The HISTOLOGICAL LABORATORY is under the supervision of the Professor of Anatomy and the Demonstrator of Histology. The

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Laboratory is furnished with excellent microscopes, and all apparatus necessary to enable the student to become practically familiar with the most approved methods of microscopical technology, as well as with the normal histology of all the tissues and organs. Special facilities are afforded for original research and work in Practical Embryology: for this purpose the Laboratory is open throughout the year, except during July and August.

The OSTEO-SYNDESMOLOGICAL LABORATORY is under the supervision of the Professor of Anatomy and Demonstrator of Osteology. In this Laboratory, the First-year student is required to make himself familiar with the skeleton and the articulations as a part of his instruction in practical anatomy.

The PATHOLOGICAL LABORATORY, under the direction of the Professor of General Pathology and Morbid Anatomy and the Demonstrator, was opened in 1874. It is furnished with microscopes and all the appliances requisite for practical study and for original research. This Laboratory is supplied with a complete outfit for the investigation of bacteria in their relation to infectious diseases, and for the study of the lower fungi.

Each student of the Second year is provided with a separate table and microscope, with material and reagents, and receives personal instruction in Pathological Histology, in Mycology, and in the Microscopy of the Urine.

Each student of the Third year receives advanced practical instruction in Morbid Anatomy, and in the performing of autopsies. Weekly demonstrations of the gross appearance of specimens, embracing all known morbid products, mostly in fresh condition, together with the microscopic sections, are features of this course. The practical work is obligatory for students of the Second and the Third years. Special instruction and guidance in original research are given by the demonstrators to advanced students. The Laboratory is open throughout the year, except during July and August.

The PHARMACEUTICAL LABORATORY is in charge of the Professor of Materia Medica and Pharmacy and the Instructors in Pharmacy. It is furnished with all necessary apparatus. Here the student not only becomes familiar with the various pharmaceutical processes, but also acquires that knowledge of drugs which can be obtained only by actual handling.

The DEPARTMENT OF PRACTICAL OBSTETRICS is under the supervision of the Professor of Obstetrics and the Demonstrators. The course includes operations on the cadaver and practice with the manikin, while lying-in cases are given to advanced students. (See also under MATERNITY PAVILIONS.)

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The WISTAR AND HORNER MUSEUM, founded nearly one hundred years ago, has been annually augmented, and is unsurpassed in the United States for the number and variety of its specimens illustrating the normal and morbid anatomy of every part of the human body. It also contains a large number of preparations in comparative anatomy, used in illustrating the lectures. Through the munificence of General Isaac J. Wistar, THE WISTAR INSTITUTE OF ANATOMY AND BIOLOGY has been erected opposite the Medical Hall, and therein the collections of the Museums are contained. The Museum is open daily, except Sunday, from 1 P. M. to 3.30 P. M. throughout the season, to matriculated students.

The CABINET OF MORBID ANATOMY, collected by Dr. George B. Wood, and given by him to the University, contains an extensive series of wet preparations, drawings and models in wax and other materials: a collection unrivaled in extent and value for illustrating diseases of the internal organs and of the skin.

The late distinguished Professor of Obstetrics, Dr. Hugh L. Hodge, enriched the facilities of instruction in that special branch by the gift of his valuable Cabinet.

Through the liberality of the late Dr. Henry H. Smith, Professor of Surgery, and of the late Dr. John Neill, Professor of Clinical Surgery, the University received further extensive and valuable gifts of morbid specimens, models and drawings; and the late eminent Professor of Surgery and Honorary Professor of Clinical Surgery, Dr. D. Hayes Agnew, generously presented his entire collection for the use of the Chair of Surgery.

THE LABORATORY BUILDING.

The first floor is arranged in rooms for the accommodation of the Laboratory for Practical Physiology and for the Classes in Operative Surgery and in Bandaging.

The second and third floors are fitted up as chemical laboratories; on the second floor is the Laboratory of General Chemistry, and on the third floor that of Medical Chemistry. In addition to the main rooms, there are two smaller rooms, provided with an adequate number of balances for quantitative work.

The fourth floor is occupied by the Dissecting-room.

The LABORATORY OF PHARMACODYNAMICS, under the direction of the Professor of Materia Medica and Therapeutics and the Demonstrator of Pharmacodynamics, is furnished with all the apparatus and instruments necessary for the study of the physiological actions of medicines.

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The PHYSIOLOGICAL LABORATORY is under the personal direction of the Professor of Physiology, who devotes his entire time to the subject, aided by the Demonstrator. It is furnished with every form of apparatus likely to be used by the practical physiologist. Every facility is afforded advanced students and graduates pursuing special studies in Physiology. The Laboratory is open throughout the year, except during July and August.

CHEMICAL LABORATORIES.—The Laboratories for Practical Chemistry are under the supervision of the Professor of Chemistry and the Demonstrator. Students of the first year devote three hours each week in the Laboratory to the study of Qualitative Analysis. The course includes chemical manipulations, and the detailed study of the chemical reactions of the principal metals, acids and their combinations; with the general principles of Qualitative Analysis, especially as they relate to the detection and separation of metals and compounds of importance to the physician. Each student is provided with a separate table and apparatus, and is required to exhibit by equations all reactions involved in his tests.

Students of the second year devote three hours per week to practical work in the Laboratory. The course embraces an introduction to the general principles of Quantitative Analysis; the principles of Volumetric Analysis; and Water Analysis: with the practical examination of urine and animal fluids, and the recognition and recovery of poisons from the animal body and complex mixtures.

DISSECTING-ROOM.—In constructing the new Dissecting-room of the University, care was taken to provide everything that experience suggested as being necessary or desirable. The room is at the top of the Laboratory Building, and is one hundred and forty feet in length by forty feet in width. It is lighted by windows on all sides, and by skylights. The most perfect ventilation is thus secured. The tables have stone tops, which cannot absorb moisture, and are kept perfectly clean. There are numerous washstands with hot and cold water, and private closets for the use of each student. Cleanliness is rigidly enforced. The cadavers furnished the dissecting room are preserved by refrigeration in a room provided for the purpose, which is kept at a temperature below the freezing point by an ice-making machine. Dissection is legalized in Pennsylvania.

PRACTICAL SURGERY.—The applying of bandages is taught to students in their first year, while the use of fracture dressings is taught in the third year, and surgical operations on the cadaver are a part of the practical instructions to students of the fourth year, under the supervision of the Professor and Demonstrators of Sur-

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gery. Instruments and splints are supplied without expense to the student.

THE STILLÉ MEDICAL LIBRARY.

The STILLÉ MEDICAL LIBRARY, the judicious selection and generous gift of Professor ALFRED STILLÉ, presented to the University in 1879, has received numerous additions, and now contains over six thousand volumes and five thousand pamphlets. It is deposited in the University Library.

THE UNIVERSITY HOSPITAL.

The University Hospital, constructed according to established principles of hospital architecture, is provided with all the appliances pertaining to such institutions of the best class. It is situated near the Medical Hall, and forms an integral portion of the Department of Medicine. In its various departments during 1897, there were treated 11,779 individual cases, representing almost all of the known medical, surgical any gynæcological affections.

Attendance on the Clinical Instruction given in its amphitheatres and wards is a part of the daily duty of the students, and ample opportunities are afforded the students to gain a personal and practical acquaintance with Clinical Medicine, Clinical Surgery, Gynæcology and the specialties. These subjects are taught by the several Clinical Professors.

The GIBSON Wing for Chronic Diseases, especially of the heart and lungs, was erected through the liberality of the late Henry C. Gibson. Here unusual opportunities are afforded for the study of these important affections.

The D. HAYES AGNEW Memorial Pavilion, comprising four large wards, and one large and two small clinic amphitheatres, is also used for clinical instruction.

The WILLIAM PEPPER Laboratory of Clinical Medicine, erected through the generosity of the late Dr. William Pepper as a memorial to his father, adjoins the University Hospital. The purposes of the Laboratory are: to promote the interests of the patients by providing facilities for the prosecution of minute clinical studies and original researches; and to advance the interests of science by the publication of the results of such work. No instruction in the Laboratory is given to undergraduates.

Four positions as resident physicians in the University Hospital are awarded annually in June to the four members of the graduating class who have attained the highest general average in examina-

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tions. Only those members of the graduating class who have taken the last three years of the course in Medicine at this University are eligible for the positions.

MATERNITY HOSPITAL.

The first pavilion of the Maternity department of the University Hospital was opened in the autumn of 1889. The second pavilion was opened in 1891, and the main building was completed in 1894. The Hospital has a present capacity of fifty beds and as many confinement cases a month. Two students of the graduating class are assigned to each case four weeks before the expected delivery. Under the supervision of a Demonstrator, a thorough examination is made of the patient's history and present condition, with special reference to the urine, pelvis and abdomen. The labor is conducted by the students in charge of the case, under the instruction of a resident physician, and daily visits are made, during the puerperium, to the mother and child. The patient's safety is guarded by a strict system of antiseptis, and unnecessary exposure is avoided by giving to each woman a separate room during her confinement. The students fill out an elaborate record of the case, which is handed to the Professor of Obstetrics.

OTHER HOSPITALS AND HOSPITAL CLINICS.

In addition to the official clinical lectures and bedside instruction delivered at the University Hospital, medical students have the opportunity of attending clinical lectures in other hospitals, and in private classes formed for the special study of disease.

Close to the grounds of the University is the Philadelphia Hospital, with its thousand beds. Here are delivered twice a week Clinical lectures on Medicine, Surgery and the Diseases of Women and Children. Lectures on Clinical Medicine and Surgery are also delivered twice a week during the greater part of the year by the Medical Staff of the Pennsylvania Hospital. Instruction in Clinical Surgery and Children's Diseases is also given at the Children's Hospital. There are also weekly Clinics in Medicine and Surgery at the German Hospital. In the Southeastern Hospital and Dispensary, students of the graduating class are lodged, in rotation, to attend confinement cases in the patients' homes. To these institutions students are admitted without charge.

During the summer private classes are formed for Clinical Instruction, for which a moderate fee is charged.

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Appointments of Resident Physicians, amounting to thirty-five or more, are made annually in the different hospitals of the city and in the Philadelphia Dispensary. Except in one or two hospitals, these positions are now filled by competitive examination of candidates.

From the preceding summary it is evident that a prolonged residence in Philadelphia must be of the utmost value to the student, by enabling him to pursue a systematic course of study, and to become practically familiar with the scientific methods of investigating disease, and with the principles and results of its treatment.

PRIZES TO BE AWARDED, JUNE, 1899.

NOTE.—*Theses and Reports in competition for Prizes must be presented to the Dean on or before April 1. Prizes will not be awarded unless the work submitted reaches a high standard of excellence.*

THE ALUMNI MEDAL is offered by the Society of the Alumni of the Department of Medicine of the University, to the member of the Graduating Class who attains the highest general average in examinations. (Only those members of the Graduating Class who have taken the last three years of the course in Medicine at this University are eligible for this prize.)

A Prize of One Hundred dollars is offered by a friend of the University, to the member of the Graduating Class who passes the best examination in Obstetrics.

The Professor of Obstetrics offers a Prize of an Obstetrical Forceps to the member of the Graduating Class who furnishes the best report of a case of Obstetrics occurring in the University Maternity Hospital.

The Professor of Clinical Surgery offers a prize of a Surgical Pocket-case for the best report of his clinics during the session; also a Prize of a copy of White & Martin's Genito-Urinary Surgery to a member of the Surgical Ward Class for the best report of that service.

The Clinical Professor of Orthopædic Surgery offers a Prize of an Antiseptic Minor Operating Case for the best practical work in Orthopædic Surgery, or for the best report of his clinic, or for an acceptable original design in Apparatus.

The Clinical Professor of Genito-Urinary Diseases offers a Prize of a copy of Treves' Operative Surgery for the best thesis on a clinical study of cases.

A Prize of a Surgical Pocket-case is offered by the Demonstrator of Anatomy, to the member of the Graduating Class who presents the best record of anomalies found in the anatomical rooms.

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Two Prizes are offered by the Demonstrator of Surgery: a Pocket-case of instruments to the member of the Graduating Class for proficiency in Fracture Dressings and in Operative Surgery; a Pocket-case of instruments to the member of the First-year Class for proficiency in Bandaging.

A Prize of an Axis-traction Obstetrical Forceps is offered by the Barton Cooke Hirst Obstetrical Society to the member of the Graduating Class who passes the best examination in Operative Obstetrics.

The JOSEPH ZENTMAYER Prize of a Histological Microscope, with two object glasses and two eye-pieces, is offered by the successors of Joseph Zentmayer to the student passing the best examinations in Histology and Embryology, the average to be made from the combined marks of the separate examinations on these branches.

A Prize of Twenty-five dollars is offered by a friend of the University to the student who passes the best special examination in Therapeutics.

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HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

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ON LIBRARY AND MUSEUM: JOHN SAILER.
OF EXECUTIVE COMMITTEE: ROBERT E. HASTINGS.

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The names of the medical staff and officers of the Hospital are printed in the preceding pages, under the Department of Medicine.

The UNIVERSITY HOSPITAL is under the immediate direction of a Board of Managers, constituted as above. It is situated on a lot of ground between Thirty-fourth and Thirty-sixth streets, and Spruce and Pine streets, given by the city of Philadelphia to the University. The main building and one wing were opened for the reception of patients and for purposes of clinical instruction in 1874. In 1882 a new wing was added, through the liberality of Mr. Henry C. Gibson, for patients suffering from Chronic Diseases. In 1897, the D. Hayes Agnew Memorial Pavilion, comprising four large wards and three clinic amphitheatres, was dedicated.

The main building, besides the offices and the rooms of the officers, has a large clinical Amphitheatre, which will seat six hundred students, and a smaller one seating one hundred and fifty. It also has twelve rooms for private patients. The wing adjoining has four wards, with a capacity of one hundred and ten patients, and sixteen private rooms. The wing for Chronic Diseases has room for sixty-two patients in its four wards. There is, therefore, with the Agnew wing and the Maternity, full accommodation for three hundred and fifty patients. In the basement are surgical and medical dispensaries, also special dispensaries for diseases of the throat and nose, diseases of children, diseases of the skin, the eye and ear, nervous diseases, diseases of women, for orthopædics and for venereal diseases, and for outdoor patients In connection with the Orthopædic Dispensary is a workshop, in which braces and other appliances are made.

The Hospital is also well adapted to purposes of teaching. A large part of the instruction given to the students in the Medical School is given here, as will be seen by reference to the rosters.

All cases of accident occurring in the State of Pennsylvania, which are brought to the Hospital within twenty-four hours after their occurrence, are admitted at any hour of the day or night.

Charity patients are admitted by the members of the Medical Staff on a written order to the Superintendent; provided that a bed be vacant in the department to which the member of the Medical Staff is attached.

Paying patients are received at the Hospital on application to the Superintendent, subject to the approval of the proper attending medical officer. The charge in the wards is $7.00 per week; in the private rooms, of which there are twenty-eight, the prices range from $17.50 to $35.00 per week. The friends of the patients can be

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accommodated in the Hospital under certain circumstances, but it is better for them to board in the neighborhood, where rates range from $5.00 per week upwards.

No patient with acute venereal disease, or mania-à-potu, is admitted as a free patient, but is charged such rates for board as may be agreed upon. There are special apartments for mania-à-potu patients.

Visitors are admitted to see patients in the private rooms at convenient hours.

Visitors are admitted to the wards on week-days between 3 and 4 P. M., and on Sundays from 2 to 3 P. M.

Four positions as resident physicians in the University Hospital are awarded annually in June to the four members of the graduating class of the Department of Medicine who have attained the highest general average in examinations. Only those members of the graduating class who have taken the last three years of the course in Medicine at this University are eligible for the positions. The resident physicians go on duty at intervals of three months, and serve during a term of two years.

An Annual Report of the Hospital is published, giving detailed statistics of the year. Copies may be had on application to the Superintendent.

Communications concerning the business of the Hospital and the admission of patients should be addressed to the Superintendent, MARY E. P. DAVIS, *and not to the Dean of the Faculty of Medicine.*

TRAINING SCHOOL FOR NURSES.

The Training School for Nurses, attached to the Hospital of the University, was organized in 1886. In that year a HOME FOR NURSES was erected in memory of Mrs. Richard D. Wood by her children, and has since then been considerably enlarged by the same generous donors. The building was completely furnished by the women members of the Training School Committee, and every provision is made for the healthful and comfortable home life of the pupil nurses. Owing to the increased size of the Hospital, more nurses have become necessary, and to lodge them properly a large addition to the Nurses' Home is now in process of construction.

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The course of instruction covers a period of three years. Besides the regular ward and class instruction, courses of lectures are given in Hygiene, Anatomy, Physiology, Medical and Surgical Nursing, Materia Medica, Toxicology, Urinalysis, Use of Splints, Bandaging, Gynæcology, Obstetrics, Diseases of Children, Diseases of Eye, Ear and Nervous System, Rest Cure, Electro-Therapeutics, Massage, Care of the Insane, Contagion, Nutrition and Cookery for the Sick.

GRADUATES IN 1898.

ELIZABETH RAMSDEN, Pennsylvania.
GERTRUDE J. WHITE, Pennsylvania.
MARY M. RICE, Pennsylvania.
ANNA SCHULTZE, Pennsylvania.
MARIE M'NALLEY, Pennsylvania.
MARION V. FELL, Pennsylvania.
ALICE L. LOVELL, Pennsylvania.
LOUISE B. ROE, Connecticut.
LOUISE M. STONE, Ohio.
ANNIE M. SQUIRE, Canada.
FRIDA AURELL, Sweden.
EDITH EATON, England.
MARGARET G. FAY, Pennsylvania.

All communications relating to the School for Nurses should be addressed to

MARY E. P. DAVIS, Superintendent,
University Hospital, Philadelphia, Pa.

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THE WISTAR INSTITUTE OF ANATOMY AND BIOLOGY.

TRUSTEES OF THE ENDOWMENT.

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*WILLIAM WYNNE WISTER,
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JOSEPH S. HARRIS,
MORRIS J. LEWIS, M. D.

OFFICERS.

CHARLES C. HARRISON, LL. D., *President.*
GEN. ISAAC J. WISTAR, Sc. D., *Secretary.*
EDWARD D. TOLAND, *Treasurer.*
HORACE JAYNE, M. D., PH. D., *Director.*
MILTON J. GREENMAN, PH. B., M. D., *Assistant Director.*

The Wistar Institute of Anatomy was founded in 1892 for the preservation and increase of the Wistar and Horner Museums, and for the promotion of advanced study and research in Anatomy and Biology. Dr. Caspar Wistar, Professor of Anatomy from 1808 to 1818, made a valuable collection of anatomical preparations for the illustration of his teachings; and after his death these were presented by his widow, Mrs. Elizabeth Mifflin Wistar, to the University. The successors of Dr. Wistar in the Chair of Anatomy constantly added to the collection, the most conspicuous of these additions being that made by Dr. William E. Horner, in 1853, whose name was thenceforth added to its title.

By the establishment of the Wistar Institute, this combined Anatomical Museum, which was the first in America open to the public,

* Deceased.

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is now assured for all time a protection and growth commensurate with its importance to medical and biological science. In order to enhance its value, General Isaac J. Wistar has generously given to the Institute a large and costly fireproof building, with ample and secure accommodation for the Museum and its expected increments, together with a sufficient endowment to provide means for beginning the advanced and original work for which it is intended. Well-equipped laboratories and offices adjoin the Museum proper, and every facility is provided for the work of original investigators under the supervision of a competent Director and skilled assistants. While the Museum under suitable regulations is free for the inspection of all teachers and students, the object of its laboratories and workrooms and of the instruction given in the Institute is to afford facilities and assistance to post-graduate and advanced students; and neither the Institute, its premises nor property, is used to replace or supersede such elementary instruction of undergraduate students as pertains to the ordinary curriculum of the University.

The Institute is a distinct corporation, its property and funds being held under a separate trust, but so organically united with the University as to constitute one of its departments, and to be, within the limits of the foundation, under its control. It is governed by a Board of Managers, of whom one holds office *ex relatione* to the founder, two *ex officio* to the Academy of Natural Sciences of Philadelphia, and the remainder by election by the Trustees of the University.

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LABORATORY OF HYGIENE.

STAFF OF THE LABORATORY.

Director.—ALEXANDER C. ABBOTT, M. D.

First Assistant.—DAVID HENDRICKS BERGEY, B. S., M. D.

Assistant in Bacteriology.—GEORGE C. KÜSEL, D. D. S., M. D.

THOMAS A. SCOTT *Fellow in Hygiene.*—ADELAIDE WARD PECKHAM, M. D.*

The Institute of Hygiene of the University of Pennsylvania, the Laboratory building for which was the gift of Mr. Henry Charles Lea, of Philadelphia, was formally opened on February 22, 1892. The equipment of the Laboratory was provided through the munificence of the late Henry C. Gibson.

†COURSES OF INSTRUCTION.

I. COURSE IN PRACTICAL HYGIENE.

This comprises lectures and practical work in the Laboratory, upon the following subjects:

(1) Water—Physical, chemical and bacteriological investigation of water supplies; methods of obtaining samples; qualitative and quantitative analysis for impurities; collection, storage and purification of water intended for domestic use; effects of filters, aëration, etc.

(2) Disposal of refuse, cremation of garbage, etc.

(3) Sewage disposal, sewers and house-drainage.

(4) Soils and building sites, physical, chemical and bacteriological investigations, soil-moisture, ground air.

(5) The atmosphere, climate and meteorological observations and records, chemical analysis, bacteriological investigation, methods of investigation, methods of ventilation and heating.

(6) Foods—adulteration, milk and meat inspections.

(7) Clothing—microscopic examination, poisonous dyes.

(8) Lighting—gas, electricity, illuminating oils.

*After holding this Fellowship for a period of two months, Dr. Peckham resigned to accept the Professorship of Bacteriology in the Woman's Medical College of Philadelphia.

† All applications for admission to these courses should be addressed to Dr. A. C. Abbott, Laboratory of Hygiene, University of Pennsylvania.

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(9) Management of contagious diseases. Practical tests of different methods of disinfection, chemical and thermal; notification, isolation and quarantine.

(10) Vital statistics, registration and methods of tabulation.

(11) Offensive and dangerous trades.

(12) Sanitary jurisprudence, law of nuisances, duties of health officers, etc.

The above course of instruction occupies ten weeks—three days per week—two hours each day.

II. Elementary Course in Bacteriology.

This course covers the following subjects:

(1) Apparatus employed—sterilizers, incubators, pressure regulators, thermostats, etc.

(2) Culture media, methods of preparation, sterilization methods.

(3) Microscopic characteristics of cultures of bacteria in general and of special forms.

(4) Methods of obtaining, from mixtures of different bacteria, individual species in pure cultures.

(5) Microscopic technique. Use and care of instruments, staining from cultures, section cutting, and staining and mounting of tissues.

(6) Pathogenic bacteria isolation, identification and inoculation.

(7) Disinfection, thermal and chemical, methods and apparatus, modes of testing efficiency.

(8) Antisepsis and asepsis in surgery and obstetrics, preparation of dressings, instruments, operator and assistants, and of patients.

(9) Bacteriological investigation of water.

(10) Bacteriological investigation of air.

(11) Bacteriological investigation of soil.

This course commences on the first Monday in October, and continues twelve weeks, five days per week, from 9 A. M. to 12 M. It will be repeated, beginning the first Monday in February, and continuing twelve weeks, five days per week, from 2 until 5 P. M.

III. Research in Advanced Hygiene and Bacteriology.

Opportunities for research work in Advanced Hygiene and Bacteriology are offered to students having the requisite preliminary training. All work coming under this head is done under the direct supervision of the Laboratory staff.

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FEES AND DEPOSITS.

Tuition fees are as follows: For Course **I**, thirty-five (35.00) dollars; for Course **II**, twenty-five (25.00) dollars; for Course **III**, twenty-five (25.00) dollars. For Courses **I** and **II** taken in succession, with the privileges of the Laboratory and attendance upon lectures on Hygiene, the fee is fifty (50.00) dollars.

All payments must be made in advance to Dr. Alexander C. Abbott, at the Laboratory, 34th and Locust streets.

All students taking courses, or otherwise working in the Laboratories, must make a deposit of ten (10.00) dollars in addition to the regular fee, to insure the Laboratory against loss by breakage, etc. All accounts held by the Laboratory against students for breakage, and materials used, will be deducted from the caution deposit, the balance being returned to the student at the end of the course (unless otherwise arranged).

GENERAL REGULATIONS.

Persons who have had courses in the Laboratory and demonstrated their capacity for independent work, or those who come from other laboratories with proper recommendations, and are desirous of making special researches coming within the scope of this Laboratory, can obtain the privilege of working in the Laboratory by the payment of the necessary fee. This does not include attention from the instructors for any definite time, but pays only for the place in which to work. The Laboratory reserves the right to refuse these privileges to any one who is not prepared to pursue independent studies of the proper character. Individuals to whom these privileges are granted must submit to the rules and regulations of the Laboratory. They will make the usual caution deposit, and pay the regular prices for materials.

Should the work of an independent student be of such a nature as either to advance the teaching or to contribute to the value of researches being conducted as the property of the Laboratory, the Director may offer to such student the privileges of the Laboratory without the payment of the regular fee, providing the work of the student is placed at the disposal of the Laboratory. Due credit will be given the student for his work thus utilized.

Only those students who give evidence of fitness to profit by the courses will be received. It is desirable that students should have some practical knowledge of chemical manipulation and of the use of the microscope, before applying for places in the Laboratory.

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The rules of the Laboratory, as to order and discipline, must be observed, and the right is reserved to request the withdrawal of any student who does not obey them.

THE THOMAS A. SCOTT FELLOWSHIP

In the Laboratory of Hygiene of the University of Pennsylvania.

Since the opening of the Laboratory this Fellowship has been founded and generously endowed by Mrs. Scott as a memorial of the late Thomas A. Scott, Esq., of Philadelphia. Its object is to aid talented students who desire to become investigators or teachers in the field of sanitary science, and to promote the increase of knowledge in that department.

The power of appointment to this Fellowship rests with the Board of Trustees of the University, who will act upon recommendation made to it by the *Electors to the Fellowship,* comprising the Provost of the University, the Chairman of the Committee of the Board of Trusteees of the Laboratory of Hygiene, and the Director of the Laboratory.

The salary attached to the position is the income arising from $10,000, the amount of endowment of the Fellowship.

Regulations Governing the Thomas A. Scott Fellowship in Hygiene.

1. Applications must be made in writing to the Provost of the University of Pennsylvania not later than March 1 of the elapsing year. The academic year begins October 1.

2. The holder of the Fellowship shall not be more than thirty years of age at the time of his appointment.

3. The application must be accompanied by evidence of a liberal education, such as the diploma of a college of good repute (the appointment being regarded as an equivalent to the baccalaureate degree). The applicant is required to possess a reading knowledge of French and German, and to have performed practical work in this Laboratory, or to give evidence of the completion of a previous research elsewhere, such as will meet with the approval of the Electors.

4. The holder of the Fellowship will be expected to perform such duties as may be allotted to him by the Director of the Laboratory in connection with his course of study; to act, when called upon,

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as assistant examiner; to use his influence for the promotion of the objects and good order of the Department; and, in general, to forward the efficiency of the University as far as may be in his power.

5. The primary purpose of the Fellowship is the prosecution, under the direction of the head of the Department, of special studies relating to the causation and prevention of disease. Before the close of the year the Fellow is required to demonstrate the progress he has made by presenting a thesis upon the results of his research; by the delivery of special lectures bearing upon the subject of his investigations; or by some similar method that will be satisfactory to the Electors.

6. While holding the Fellowship he will not be permitted to engage in any work other than that directly bearing upon the interests of the Department.

7. All work performed is to be considered the property of the Laboratory, and to be published only with the consent and approval of the Director of the Department.

8. The Fellow will be expected to aid in the instruction at the Laboratory by lectures or otherwise, as may be directed, but will not be permitted to teach in any other institution during the time of holding the Fellowship.

9. He may be reappointed at the end of the year, but only for exceptional reasons.

10. The holder is exempt from tuition fees. In case of resignation, promotion or removal from the Fellowship, payments will be made for the time during which the office shall have been actually held.

11. The Electors have the right to declare the Fellowship vacant if the holder proves in their opinion unworthy, and no further salary shall be paid to the person thus removed.

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DEPARTMENT OF DENTISTRY.

FACULTY.

CHARLES C. HARRISON, LL. D., PROVOST.

——— ——— ———, VICE-PROVOST.

CHARLES J. ESSIG, M. D., D. D. S., Professor of Mechanical Dentistry and Metallurgy.

EDWIN T. DARBY, M. D., D. D. S., Professor of Operative Dentistry and Dental Histology.

JAMES TRUMAN, D. D. S., Professor of Dental Pathology, Therapeutics and Materia Medica.

EDWARD C. KIRK, D. D. S., Professor of Clinical Dentistry, and DEAN OF THE FACULTY.

EDWARD T. REICHERT, M. D., Professor of Physiology.

GEORGE A. PIERSOL, M. D., Professor of Anatomy.

JOHN MARSHALL, M. D., NAT. SC. D., Professor of Chemistry and Toxicology.

MATTHEW H. CRYER, M. D., D. D. S., Assistant Professor of Oral Surgery.

GEORGE G. MILLIKEN, M. D., D. D. S., Assistant Professor of Operative Technics.

JOHN D. THOMAS, D. D. S., Lecturer on Nitrous Oxide.

NORMAN STURGES ESSIG, D. D. S., Lecturer on Mechanical Dentistry.

MEYER L. RHEIN, M. D., D. D. S., Lecturer on Dental Pathology.

FREDERIC A. PEESO, D. D. S., Lecturer on Crown-and-Bridge Work.

SAFFORD G. PERRY, D. D. S., Lecturer on Operative Dentistry.

DEMONSTRATORS.

WILLIAM DIEHL, D. D. S., Demonstrator of Operative Dentistry.

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JAMES G. LANE, D. D. S., Demonstrator of Mechanical Dentistry.

JAMES E. LODER, D. D. S., Assistant Demonstrator of Operative Dentistry.

JOSEPH W. WHITE, D. D. S., Assistant Demonstrator of Operative Dentistry.

AMBLER TEES, D. D. S., Demonstrator of Platinum Ceramics.

R. HAMILL D. SWING, D. D. S., Assistant Demonstrator of Operative Dentistry, and Demonstrator of Anæsthetics.

FREDERICK AMEND, JR., D. D. S., Assistant Demonstrator of Mechanical Dentistry.

MILTON N. KEIM, JR., D. D. S., Assistant Demonstrator of Mechanical Dentistry.

J. EDWARD DUNWOODY, D. D. S., Assistant Demonstrator of Operative Dentistry.

ROBERT J. SEYMOUR, D. D. S., Assistant Demonstrator of Mechanical Dentistry.

JOSEPH M. HILL, D. D. S., Assistant Demonstrator of Crown-and-Bridge Work.

NEWTON C. HASSELL, D. D. S., Assistant Demonstrator of Operative Dentistry.

A. SWANTON BURKE, D. D. S., Assistant Demonstrator of Mechanical Dentistry.

WILLIAM C. MARSH, D. D. S., Assistant Demonstrator of Operative Dentistry.

JAMES A. DOWDEN, D. D. S., Assistant Demonstrator of Mechanical Dentistry.

HARRY B. HICKMAN, D. D. S., Assistant Demonstrator of Mechanical Dentistry.

WILSON ZERFING, D. D. S., Assistant Demonstrator of Operative Dentistry.

EDMUND W. HOLMES, M. D., Demonstrator of Anatomy.

ROBERT FORMAD, M. D., Demonstrator of Normal Histology.

GEORGE H. CHAMBERS, M. D., } Assistant Demonstrators of
AUGUSTUS O. KOENIG, D. D. S., } Normal Histology.

RICHARD H. HARTE, M. D., Demonstrator of Osteology.

DANIEL W. FETTEROLF, M. D., Assistant Demonstrator of Chemistry.

JAMES H. McKEE, M. D., Assistant Demonstrator of Physiology.

PERCIVAL W. DARRAH, M. D., Assistant Demonstrator of Physiology.

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CLINICAL INSTRUCTORS.

Dr. C. S. Beck,
Dr. W. G. A. Bonwill,
Dr. W. R. Millard,
Dr. R. R. Underwood,
Dr. E. H. Neall,
Dr. H. C. Register,
Dr. I. F. Wardwell,
Dr. Daniel N. McQuillen,
Dr. Edward I. Keffer,
Dr. John R. Yorks.

ORGANIZATION OF THE DENTAL SCHOOL.

The Department of Dentistry of the University of Pennsylvania was organized in the early part of 1878. It was the third school created as the dental department of a university, having been preceded in this respect by the Harvard School of Dentistry (organized in 1867), and the Dental Department of the University of Michigan (organized in 1875).

The motive leading to the creation of dental schools as regular departments of the university educational system was the rapid growth of dentistry as a profession. This was shown by the improvement in the educational equipment of its practitioners, and by the tendency to broaden the courses of instruction furnished by dental schools to meet the continual necessity for more thorough training.

Realizing that but two conceptions of the status of dentistry were possible, viz.: that it was either a branch of medicine, or else a separate profession; and believing that its close relationship with medicine called for the future development of dentistry in conformity therewith, the Trustees took action resulting in the creation of the Department of Dentistry of the University of Pennsylvania. The plan of instruction was so arranged that the branches common to both medicine and dentistry were taught concurrently by teachers who held corresponding chairs in both medical and dental faculties, while the strictly dental teaching was provided for by the creation of chairs whose incumbents were specially qualified for giving instruction in their respective branches. This arrangement is in strict accordance with the University idea, by which the teaching of allied branches is centralized in different departments. It does not imply that the Department of Dentistry is a branch of the Department of Medicine, for, as a matter of fact, both are distinct departments of the University.

The success of the department has been marked from the beginning. A steady increase in the size of its classes, abundant clinical

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patronage, and the large aggregate number and character of the operations done in its infirmary service, are practical and convincing proofs of its success as a dental educational institution.

It is worthy of note that the Department of Dentistry is actually, as well as in name, a department of the University. Its position as a recognized member of the University family confers upon its students certain advantages pertaining to that relationship. Its students enjoy in common with all other students of the University the privileges and social relationships pertaining to the student life of the whole body. Prominent among these features is membership in the Houston Club, an organization governed by students, and domiciled in a club house which in its fittings and appointments is second to no other club house in Philadelphia. Its students have also the use of the Dormitories, and are admitted to all of the athletic features of the University; while, with reasonable restrictions, the opportunity is afforded them to pursue such allied lines of study as in the judgment of the authorities may tend to add strength and fullness to the dental educational equipment.

The practical advantages that accrue to the dental student by such a broad policy are at once manifest. Its effect upon the status of the dental practitioner must be recognized when it is considered that during his student life, his association with the students of the other departments of the University is upon a basis of equality in all that concerns the student life of the institution. The influence of this feature in bringing about a close relationship between dental and medical students develops a mutual respect and recognition, which in their career as practitioners is of the utmost importance.

THE NEW DENTAL HALL.

The arrangement of the interior of Dental Hall is such that facilities are provided for the thorough education of the student in every important detail of his professional work. The clinical operating room occupies one entire floor of the main building, giving a floor space 180 by 50 feet, furnished with one hundred latest pattern Wilkerson operating chairs, each provided with a fountain cuspidor, with running water attached, and attachment for the Fisk saliva ejector. Each chair is provided with a bracket arm and table for holding instruments, besides a separate table for the instrument case. Electric service is provided for each chair. A complete locker system in connection with the operative clinic

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furnishes means for the storage of instruments when not in use.* In the fitting up of the operating room, the aim has been to make the appointments as nearly as possible like those of a first-class private office, so that from the beginning of his course the student is familiarized with the conditions he will meet in actual practice.

One large general laboratory for prosthetic work is provided, and separate departments for crown-and-bridge work, orthodontia technics, prosthetic technics, operative technics, metallurgical work, vulcanizing and modeling; special clinic rooms, and laboratories. Ample arrangements are provided for the convenience and comfort of the students in the care of instruments, tools, etc. There are also hat and coat rooms, lavatories, etc., a bicycle room, laundry, store rooms and living apartments of the janitor; and an assembly room for the exclusive use and recreation of the students when not on duty. The laboratories are fitted with the most approved appliances for work and instruction in the several departments of dentistry. Compressed air is supplied to the laboratory tables for melting and soldering operations, as well as for metallurgical work. The laboratory lathes are driven by electric motor, and no feature which could add to the facilities for thorough and accurate work has been omitted.

The lecture amphitheatre will comfortably seat 550. It joins the main building by a corridor, and in relation with it are arranged the dental museum and library.

As the laboratory, or manual-training, method forms a prominent and necessary adjunct to didactic teaching, facilities for carrying out the technic system of instruction are provided in connection with each subject to which the system is applicable.

ADMISSION.

N. B.—Special attention is called to the rule adopted by the National Association of Dental Faculties, August, 1896, requiring all applicants for matriculation to be present and enter their names *not later than the tenth of October.* This rule applies with equal force to *all* students.

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* The Department is provided with locker facilities for the storage of instruments, apparel, etc., which are believed to be the best and safest yet devised for the purpose. It is to be understood however that the lockers are provided solely as an accommodation, and that in renting them to the students the Department assumes no responsibility whatever with respect to the care or loss of the locker contents.

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Candidates for admission are required to present evidence of a preliminary education as follows:

For the session of 1899-1900, a certificate of two years' High School attendance; for the session of 1900-01, a diploma of an approved High School having a three years' course, or a certificate showing three years' attendance at a High School having a four years' course; or certificates from other schools showing equivalent education. In lieu of such diplomas or certificates, the applicant will be required to pass a matriculate examination, which shall in each case be the equivalent of that forming the basis of the certificates of required preliminary education.

Students possessing the requisite preliminary education, and who have attended one full term in a dental school recognized by the University, or who have attended one or more courses in a recognized medical college, will be admitted to the second year, subject to the rules governing examinations.*

Students of the Third-year Dental class of this Department will be admitted to the Second-year class of the Department of Medicine of this University, and will be permitted to pursue the studies of the second year of the Medical course simultaneously with the studies of the Third-year course in the Department of Dentistry. The student must, however, while a member of the First-year class in the Department of Dentistry, give notice before November 1 of the current year to the Dean of the Department of Medicine of his intention to take both courses, in order to be eligible. He must also fulfill the requirements of the entrance examination of the Department of Medicine when he matriculates in that Department. In addition to the examination in the Department of Dentistry at the end of the first year, the student will also be required to pass examinations in Chemistry, Anatomy and Physiology in the Department of Medicine. This arrangement enables the successful candidate to obtain the degrees D. D. S. and M. D. in five years.

Graduates of a recognized medical or pharmaceutical school will be admitted to the Second-year Dental class without examination.

The course of instruction is graded and extends over three years. It consists of three sessions of eight months each, beginning October 1 (or October 2, if the first falls on Sunday), and ending

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*All applicants for advanced standing must pass the examinations of the years they desire to omit, or furnish proof that they have passed *equivalent* examinations in some recognized dental or medical school.

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the second Wednesday in June in each year. Each regular session is followed by a shorter one of a practical character, confined wholly to the Operating Room. The short sessions are optional, beginning the day following Commencement, and ending the last day of June.

Laboratory instruction, not only in all of the practical dental branches, but also in Practical Chemistry, Histology, Bacteriology and Osteology, forms a prominent feature of the course.

UNIVERSITY SCHOLARSHIPS IN DENTISTRY.

The Trustees have established two University Scholarships in Dentistry, which will be awarded upon the result of a competitive examination equivalent to that demanded for admission to the technical courses in the College: they are not awarded for less than the entire course.

Examinations for these scholarships are held on the same day with those fixed for entrance to the College (Friday, September 22, 1899), and are open to all applicants otherwise eligible for admission to the Department of Dentistry. Circulars setting forth in detail the plan of the Scholarship examination may be had upon application to the Dean of the Department of Dentistry.

ARRANGEMENT OF SESSION.

The Academic year consists of one session beginning on October 1, and ending at Commencement, on the second Wednesday in June.

The session 1899-1900 will begin on Monday, October 2, 1899, and will end on Wednesday, June 13, 1900.

RULES GOVERNING EXAMINATIONS.

FIRST AND SECOND YEAR STUDENTS.

1. The examination marks of this Department are based on a scale of 100. Each student must obtain a general average of 60 to pass the examinations of the year. 50 on a single branch will entitle him to average; less than 50 constitutes a failure in that branch.

2. Students who have failed to pass in any or all of the branches, have an opportunity given for a second examination before the opening of the next Regular Session; but if the student fail to appear, or if his general average be less than 60, he shall repeat the

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studies of the year except those in which he received a grade of not less than 70.

3. A student may be permitted to matriculate in the succeeding year, provided he has successfully passed in all but one branch, with the condition that the one in which he has been found deficient must be passed prior to the examination of the year in which he has been matriculated.

4. Students who have failed to complete the work of any year, or who are obliged to repeat, will be charged the regular fee.

EXAMINATION FOR GRADUATION.

1. The examination marks shall be upon a scale of 100.

2. Each candidate must attain at least 50 in any single branch, and have a general average of 60, before he can be recommended for graduation.

3. Candidates who attain a general average of at least 90 shall be considered to have gained honors of the First Class, and will receive Honorable Mention.

4. The graduation average shall be based on the examination marks of the whole curriculum.

5. Examinations are held immediately after the completion of the lecture courses.

No student can be examined before that time except by consent of the Faculty.

GRADUATION.

At the close of the third year, a student who has fulfilled all requirements satisfactorily, receives the degree of *Doctor of Dental Surgery* (D. D. S.), on the following conditions:

I. He must be of age and of good moral character.

II. He must have passed a satisfactory examination in all the branches of the curriculum; must have attended the practical instruction and performed the required practical work in all departments; and his last year of instruction must have been at the Department of Dentistry of this University.

III. He must have dissected at least two parts; must have performed thoroughly, and to the satisfaction of the Professor of Operative Dentistry, all the usual dental operations; must have undertaken at least one artificial case, and brought it completed, with the patient, to the Professor of Mechanical Dentistry, thirty days before the close of the term; and must have prepared for presentation to the Professor of Mechanical Dentistry, before the

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first of March, a specimen case to be deposited in the University collection. The required operations, as well as the work on the artificial case, must have been performed in Dental Hall.

IV. After receiving notice of having successfully passed the final examination, he must enter his name on the Register of Candidates for the Degree.

V. He must be present at Commencement, unless excused by the Dean of the Faculty.

*TEXT-BOOKS AND WORKS OF REFERENCE.

Text-Books.	Works of Reference.
Operative Dentistry:	
Kirk, the American Text-Book of Operative Dentistry.	Guilford, Orthodontia.
	Farrar, Irregularities of the Teeth and their Correction.
Mechanical Dentistry and Metallurgy:	
Essig, The American Text-Book of Prosthetic Dentistry.	Wildman, Instruction in Vulcanite Work.
Essig, Dental Metallurgy.	Kingsley, Oral Deformities.
Dental Pathology and Therapeutics:	
Burchard, Dental Pathology, Therapeutics and Pharmacology.	
Materia Medica:	
Gorgas, Dental Medicine.	H. C Wood, Therapeutics.
	Wood & Bache, United States Dispensatory.
Chemistry:	
Richter, Inorganic Chemistry.	Mitchell, Dental Chemistry.
Medicus, Qualitative Analysis.	Wormley, Micro-Chemistry of Poisons.
Histology:	
Piersol, Normal Histology.	
Anatomy:	
Gray, Human Anatomy.	Tomes, Dental Anatomy.
Dissection Manual:	
Holmes, Outlines of Anatomy.	

* In all cases the latest editions should be obtained.

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Text-Books.	Works of Reference.
Physiology:	
American Text-Book of Physiology.	
Oral Surgery:	
Marshall, Injuries and Surgical Diseases of the Face, Mouth and Jaws.	Garretson, System of Oral Surgery.
Bacteriology:	
Abbott, Principles of Bacteriology.	Miller, Micro-Organisms of the Human Mouth.
Dictionary:	
Gould, Student's Medical Dictionary.	

During the regular session, the following is the arrangement of studies:

FIRST-YEAR CLASS.—SESSION 1898-99.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
10 A. M.	**Marshall.** General Chemistry.	**Marshall.** General Chemistry.	9 A.M. Laboratory Instruction in Mechanical Dentistry or in Operat. Technics.	9 A.M. Laboratory Instruction in Mechanical Dentistry or in Operat. Technics.	9 A.M. Chemical Laboratory Three hours.	9 A.M. Instruction in Mech. or Operat. Dentistry.
11 A. M.	Laboratory Instruction in Mechanical Dentistry or in Operative Technics.	**Harte.** Osteology.				**Truman.** Dental Materia Medica.
12 M.		12 M. Practical Histology. Two hours. Section A.	12 M. Practical Histology. Two hours. Section B.			
1 P. M.	Operative Clinic.		3½ P. M. **Harte.** After Jan. 1 Osteology Quiz.	Operative Clinic.	Operative Clinic.	
3½ P. M.	Physiology Demonstration Section A. Laboratory Building.	**Piersol.** Anatomy.	**Essig.** Mechanical Dentistry until Jan. 1. Metallurgy after Jan. 1.	**Piersol.** Anatomy.	Physiology Demonstration. Section B. Laboratory Building.	
4½ P. M.		**Reichert.** Physiology.		**Reichert.** Physiology.		
5½ P. M.	**Essig.** Mechanical Dentistry.					

Final Examinations at the end of term, Materia Medica, General Chemistry, Elementary Anatomy, Histology, Osteology, and Elementary Physiology.

For the study of Practical Histology the class is divided into sections, only one of which is occupied at a time. Those of the First-year students not thus engaged attend the Operative and Mechanical preliminary work.

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SECOND-YEAR CLASS.—SESSION 1898-99.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
9 A. M.	Laboratory of Mechanical Dentistry, or Operative Clinic. Crown and Bridge Work.	Laboratory of Mechanical Dentistry, or Operative Clinic. Crown and Bridge Work.	Laboratory of Mech. Dent., or Op. Clinic. Crown and Bridge Work.	Laboratory of Mechanical Dentistry, or Operative Clinic. Crown and Bridge Work.	Laboratory of Mechanical Dentistry, or Operative Clinic. Crown and Bridge Work.	Operative Clinic.
10 A. M.						
11 A. M.						
12 M.			**Kirk.** Clinical Dentistry.			**Cryer.** Oral Surgery.
1 P. M.	Operative Clinic.	Operative Clinic.	Operative Clinic.	Operative Clinic.	Operative Clinic.	
3 P. M.		3 A. M. Physiology Demonst'n.		3 P. M. Physiology Demonst'n.		
3½ P. M.	**Piersol.** Anatomy.				**Piersol.** Anatomy.	
4½ P. M.	**Reichert.** Physiology.	**Darby.** Operative Dentistry.	**Essig.** Mechanical Dentistry until Jan. 1. Metallurgy after Jan. 1.	**Darby.** Operative Dentistry.	**Reichert.** Physiology.	
5½ P. M.	**Essig.** Mechanical Dentistry.				**Truman.** Dental Pathology and Therapeutics.	

Final Examinations at the end of term, Anatomy, including Dissection, Physiology and Progress in Operative and Mechanical Dentistry.
One section of the class dissects daily from 12 M to 2 P. M.

THIRD-YEAR CLASS.—SESSION 1898-99.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
9 A. M.	Operat. or Mechanical Clinic and Clinical Practice in Crown and Bridge Work.	Operat. or Mechanical Clinic and Clinical Practice in Crown and Bridge Work.	9 to 12 A. M. Bacteriol., 1 Section. Others attend Operat. or Mechanical Clinic.	Operat. or Mechanical Clinic and Clinical Practice in Crown and Bridge Work.	Operat. or Mechanical Clinic and Clinical Practice in Crown and Bridge Work.	Operative Clinic.
10 A. M.						
11 A. M.						
12 M.	Operative Clinic.	Operative Clinic.	**Kirk.** Clinical Dentistry.	Operative Clinic.	Operative Clinic.	**Cryer.** Oral Surgery.
1 P. M.			Operative Clinic.			
2 P. M.						
3½ P. M.	2 to 5 P. M. Bacteriol., 1 Section. Others attend Operative Clinic.					
4½ P. M.		**Darby.** Operative Dentistry.	**Essig.** Mechanical Dentistry until Jan. 1. Metallurgy after Jan. 1.	**Darby.** Operative Dentistry.		
5½ P. M.	**Essig.** Mechanical Dentistry.				**Truman.** Dental Pathology and Therapeutics.	

Final Examinations upon Operative and Mechanical Dentistry, Metallurgy, Dental Pathology and Therapeutics, Clinical Dentistry, Bacteriology and Oral Surgery.

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Medical and Surgical Clinics at the University Hospital are held from 12 M. to 2 P. M. on Wednesdays and Saturdays, and are open to the Second and Third-year classes. These are in addition to the Oral Surgical Clinics as noted on the roster.

OPERATING ROOM, LABORATORIES, ETC.

The department possesses exceptional facilities for thorough training in Dentistry, both theoretical and practical.

The chemical laboratories are large and fully equipped, affording ample facilities for the practical training of the student in this important branch.

The Dissecting-Room is large, well lighted, thoroughly ventilated, and furnished with ample material for the successful prosecution of anatomical studies.

GRADING OF THE COURSE.

In order to facilitate work in the practical branches, and to economize the student's time, the regular session is so arranged that students during the first year are required to devote the morning hours equally to dental, histological and chemical laboratory work.

During the second and third years, the student has practically the entire forenoon of each day for dental work. Thus ample opportunity is afforded for practice in Operative and Mechanical Dentistry. In the latter branches, the students of the first year are divided into sections, devoting the time not otherwise engaged to practice in the operating and mechanical rooms.

This plan of gradation enables the First-year student to present himself for examination in the following branches: Chemistry, Materia Medica, Elementary Anatomy, Histology, Osteology and Myology, and in Physiology, excepting the muscular and nervous systems. The Second-year student will be examined on Anatomy and Physiology, and on the progress in Operative and Mechanical Dentistry. Such an arrangement is economical not only in point of time, but also in facilitating the student's acquirement of knowledge in the remaining branches.

OUTLINE OF THE COURSE.

Students of the First-year class will be required to attend instruction in the following branches, and to pass final examinations at the close of the term. If the student fail to pass, a second examination is open to him at the beginning of the next Regular Session.

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1. Chemistry. Two lectures per week. Three hours laboratory.
2. Dental Materia Medica. One lecture per week.
3. Elementary Anatomy. Two lectures per week.
4. Physiology, excepting the Muscular and Nervous Systems. Two lectures and two hours per week of practical demonstrations.
5. Histology. Two hours laboratory instruction per week.
6. Osteology. One lecture and one demonstration per week.
7. Students of the First-year class will be trained in Operative and Mechanical Technics during hours not otherwise occupied.
8. They will, in addition to the subjects named, attend lectures on Mechanical Dentistry. Two hours per week.

SECOND YEAR.

1. Students of the Second-year class will attend lectures on Anatomy and Physiology, Operative and Mechanical Dentistry, Dental Metallurgy, Dental Pathology and Therapeutics, Clinical Dentistry and Oral Surgery. All the work in Practical Anatomy (dissecting) is done during this year.
2. They will pursue Operative and Mechanical Work, with the privilege of the Operating Room and appliances during the morning and afternoon clinics.
3. The final examinations of the Second year will be upon Anatomy, Physiology, and Progress in Operative, Mechanical Dentistry and Dental Metallurgy.

THIRD YEAR.

1. Students of the Third-year class will continue the practical work in Operative Dentistry, Mechanical Dentistry and Dental Metallurgy, and the lectures on these subjects, together with Dental Pathology and Therapeutics, and Clinical Dentistry, Bacteriology and Oral Surgery.
2. At the close of the term they will be required to pass examinations in these branches.

COURSE OF INSTRUCTION.

The lectures on OPERATIVE DENTISTRY AND DENTAL HISTOLOGY embrace the comparative anatomy of the teeth; the functions and microscopical peculiarities of the dental organs; the development of teeth and their component tissues; a full description of the materials and instruments used in operative dentistry; a thorough elucidation of all dental operations, such as filling, extracting and regulating; the pathological relations of the teeth to the other

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parts of the system; and a minute description of all diseases related to dental surgery or of interest to the dentist. The methods taught are demonstrated in clinics.

The instruction in MECHANICAL DENTISTRY AND DENTAL METALLURGY embraces the proper fitting up of a dental laboratory; the use of tools; the melting, refining, alloying and working of metals and alloys used by the dentist; the chemical and physical properties of materials pertaining to ceramic dentistry, their preparation and the most approved formulas for compounding bodies and enamels for the manufacture of block teeth and enameled platinum dentures; the history and properties of all substances used in making artificial dentures, as well as the mechanical treatment of cleft palate, including the several methods of constructing obturators for such cases, whether congenital or acquired. The lectures in this branch also include every approved mechanical means of correcting irregularities of the teeth, and are amply illustrated by specimens, models, diagrams and practical application in the laboratory, under the supervision of experienced mechanical dentists. Special attention will be directed to crown-and-bridge work, the higher branches of plate work, enameled platinum dentures and carving teeth. The preparation of crown-and-bridge work and enameled platinum dentures is under the charge of specially qualified demonstrators, and the students are required to become familiar with the manipulation of metals and the preparation of the other materials used in the work. Technical training in the making of plates, clasps and in setting rims, and in all the details of prosthetic dentistry is an important part of the course of instruction in this branch.

Every student is required to furnish his own tools for metal and rubber work, and will be provided with a place in which they can be locked when not in use.

The lectures on CHEMISTRY embrace the study of chemical physics and principles of chemical philosophy, together with a detailed consideration of the principal elementary substances and their compounds; and of the fundamental principles of organic chemistry, including the classification of organic compounds, and the special study of typical members of the different classes. Special attention is also given to the laws of chemical affinity, and the conditions under which they are modified, especially as they relate to the preparation of mixtures and prescriptions.

The course in practical chemistry in the Laboratory includes exercises in chemical manipulation; the study of the chemical

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properties of the principal metals; the reactions of acids and their combinations; and the general principles of qualitative analysis, especially as they relate to the detection and separation of the metals and compounds of interest to practitioners of dentistry. Each student is provided with a separate table and apparatus, and is required to perform all the usual chemical manipulations under the directions of demonstrators, as well as to exhibit by written formulæ all reactions involved in his tests.

HUMAN ANATOMY is taught in its relations to all the branches of medical science, including dentistry. The lectures are illustrated by fresh dissections of the human body, and by a rich museum of anatomical specimens, well-executed models and drawings.

In addition to the lectures and demonstrations by the Professor of Anatomy, practical instruction in general and special HISTOLOGY will be given in the histological laboratory to the students of the first year, the class being divided into sections. The laboratory is furnished with excellent microscopes, and all apparatus necessary to enable the student to become familiar with the most approved methods of microscopical technology and with the minute structure of all the tissues and organs. Special facilities are afforded for original research; for this purpose the laboratory is open throughout the year, except during July and August.

The OSTEO-SYNDESMOLOGICAL LABORATORY is under the supervision of the Professor of Anatomy and Demonstrator of Osteology. In this Laboratory, the First-year student is required to make himself familiar with the skeleton and the articulations as a part of his instruction in practical anatomy.

The course in PHYSIOLOGY includes thorough instruction on the subject of animal physiology, with special reference to the physiology of Man.

The lectures on DENTAL PATHOLOGY include such portions of general pathology as have a bearing upon the special subjects taught.

Dentition and its possible pathological results receives careful attention, followed by a detailed consideration of all the diseases to which the teeth and surrounding parts are liable; the normal and abnormal character of the oral secretions, and the direct and remote relations that the pathological conditions of the mouth sustain to other portions of the system.

The treatment required under each head is explained, and the recognized processes necessary to secure a return to normal conditions are minutely detailed.

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MATERIA MEDICA is taught with special reference to the character and value of those remedies which have any bearing upon dental therapeutics.

BACTERIOLOGY.—The study of Bacteriology is an obligatory part of the third-year curriculum. The growing importance of this subject in relation to dental pathology and therapeutics has made necessary certain modifications in the technique of nearly all dental operations. A clear understanding of the practical bearing of bacterial life-processes has become a necessity for intelligent and successful dental practice just as it has similarly for surgical practice.

The course is so arranged with respect to the requirements of the dental practitioner that he will afterwards be able to not only correctly apply the most approved methods for preventing and combating bacterial action, and to develop an efficient system of antiseptic technique, in connection with his work, but he will also be trained in the several methods that will enable him to study the bacterial factor which is the exciter of pathological conditions in special cases arising in his practice.

The instruction in bacteriology, which is under the direction of Dr. A. C. Abbott, Director of the Laboratory of Hygiene, is principally practical and embraces full laboratory instruction, covering the following subjects:

1. Apparatus employed—sterilizers, incubators, pressure regulators, thermostats, etc.
2. Culture media, methods of preparation, sterilization methods.
3. Microscopic characteristics of cultures of bacteria in general and of special forms.
4. Methods of obtaining, from mixtures of different bacteria, individual species in pure cultures.
5. Microscopic technique. Use and care of instruments, staining from cultures, section cutting and staining and mounting of tissues.
6. Pathogenic bacteria, isolation, identification and inoculation.
7. Disinfection of instruments, appliances, etc., thermal and chemical, methods and apparatus, modes of testing efficiency.
8. Antisepsis and asepsis in dental surgery, preparation of dressings, instruments, operator and assistants and of patients.

Following this, the special study of Bacteriology in relation to dental pathological conditions will receive full consideration and

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elaboration. The classification, life-history, modus of infection and pathological significance of all bacterial forms having distinct dental importance will be studied in detail.

The lectures on these subjects are appropriately illustrated, and accompanied by suitable demonstrations whenever possible. The Laboratory of Hygiene has a thoroughly equipped department for practical instruction in bacteriology, including an ample number of high-grade microscopes for the special use of dental students in the study of this branch. Examination upon the subject will be a pre-requisite to the obtaining of the dental degree.

The text-book required is Abbott's *Principles of Bacteriology*. Miller's *Micro-organisms of the Human Mouth* will be used for the special study of the dental aspect of the subject.

CLINICAL DENTISTRY.—The instruction in this department has for its object the study of the whole range of dental operations as they arise in practice, especially from the clinical point of view.

The valuable clinical material which is afforded by the large dental infirmary service of the University is utilized as the basis of the instruction given both didactically and by demonstration. Cases are continually presenting for treatment in the infirmary which furnish important points for study, and whenever these form suitable subjects for demonstration a study of the case is made for the benefit of the class. The student is thus brought into close contact with a great variety of dental and oral disorders, and is made familiar with the methods of diagnosis and the etiology and treatment of the conditions with the actual cases before him.

The teaching in this department includes, besides the foregoing, a study of the professional relations of the dentist to his patients, involving matters of deportment, habits of personal cleanliness, etc.: in short, all of those factors of professional conduct and bearing which, taken together, determine the degree of his professional success.

In the lectures on clinical dentistry, all of the latest developments in operative procedures, so far as they may have value from the clinical standpoint, are presented and critically considered.

ORAL SURGERY is a specialty which is a distinct outgrowth from dentistry. As the work of the dentist came to include operations upon the surrounding tissues, as well as upon the teeth themselves, the adoption of surgical methods and more thorough training in the principles and practice of surgery became necessary. The addition of instruction in this branch to the dental curriculum includes thorough instruction in the surgical and pathological

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anatomy of the mouth, jaws and associate parts; the etiology, diagnosis and treatment of lesions of these parts; the most advanced methods of operative technique, including the use of the surgical engine, surgical anesthesia, asepsis and antisepsis, and after-treatment of the case.

The instruction is both didactic and clinical, and students are encouraged to study and personally treat cases under the supervision of the Professor of Oral Surgery and his assistants.

Special facilities for the performance of oral surgical operations and for the care of patients are provided in the University Hospital.

CLINICAL PRACTICE.

Seven hours daily (except on Saturdays) are spent in actual practice under the supervision of the demonstrators; on Saturdays from 9 A. M. to 12 M. Every student is required to provide his own insruments, except those for extracting. He is expected to keep them in perfect order, and will be furnished with a place in which they can be locked when not in use.

INFIRMARY AND LABORATORY.

The Infirmary and Laboratory are open to the students for practice every day during the week, except on Saturday afternoons, which are reserved for Clinics that may be given by members of the faculty or instructors.

The Infirmary and Laboratory are open throughout the year, except during July and August.

MUSEUM AND CABINETS.

The WISTAR AND HORNER MUSEUM, founded nearly one hundred years ago and annually augmented, is unequalled in the United States for the number and variety of its specimens of the normal and the morbid anatomy of the human body. It also contains a large number of preparations in Comparative Anatomy; a rich collection relating to Dentistry, such as the different stages of dentition, abnormal conditions of the teeth, mandibles of the lower animals, etc.; and an extensive collection of models. This collection is deposited in the building opposite Medical Hall, erected by General Isaac J. Wistar, and called The WISTAR INSTITUTE OF ANATOMY AND BIOLOGY. The Museum is open every week-day, excepting holidays, from 9 A. M. to 3.30 P. M. throughout the sessions. The matriculation fee in the Department of Dentistry confers admission to the Museum.

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TUITION FEES AND EXPENSES.*

First Year.

Matriculation Fee (paid once only)	$5 00
Tuition Fee	100 00

Second Year.

Tuition Fee	$100 00
Fee for Dissection	10 00
Dissecting Material	$1 per part.

Third Year.

Tuition Fee	$100 00
Graduation Fee	30 00

For each additional year.....$100 00

All tuition fees are payable to EDWARD C. KIRK, DEAN. The tuition fee of $100 each year is *on condition that it is paid before November 1.* If paid on or after November 1, the fee will be $105 for the year. If a division of payments is desired, $55 are to be paid before November 1, and $50 before February 1.

The only free scholarships granted are those noted on page 289.

Students of the Department of Dentistry, at the discretion of the Dean, may attend without additional charge the lectures and recitations in any other department of the University. This privilege can be obtained only by the student presenting a letter from the Dean of the Dental Faculty to the Dean of any other Faculty, endorsing his application.

At the beginning of the first year, each student is required to make a deposit of five dollars with the Professor of Chemistry, to cover breakage in the chemical laboratories. Any balance remaining is returned. At least twenty-five dollars must be paid on account of tuition before the student can be admitted to the Chemical Laboratory.

Instruments for the first year can be procured at from $35 to $50. A dental engine will be needed for the second year, costing from $30 to $50. These instruments will be required in general practice.

Board can be obtained near the University for $5 per week upwards.

Further information may be obtained from

EDWARD C. KIRK, Dean.

The Dean's office is in Room 39, Dental Hall, Thirty-third and Locust streets. Office hours: 9 A. M. to 1 P. M., daily.

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* For Estimate of Expenses, see page 303.

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The subjoined reports give some conception of the character and mass of work performed in the Operative and Mechanical Departments; but the amount of costly material and careful attention necessary for the insertion of 4,960 gold fillings can be appreciated only by the experienced operator.

The number of patients (7,235) exhibits the extent of the dental infirmary service to a large class of persons of limited means.

*OPERATIVE DEPARTMENT.

Gold fillings	4,960
Tin fillings	1,011
Cement fillings	1,918
Amalgam fillings	1,520
Gutta-percha fillings	512
Canal fillings	450
Pulps capped	421
Pulps devitalized	448
Pulps extracted	529
Pulpitis	325
Treatment pulp canals	1,672
Pericementitis	159
Alveolar abscess	142
Inflammation of gums	241
Pyorrhœa alveolaris	159
Salivary calculus	310
Teeth and roots extracted	3,861
Total	18,638

Sixty ounces (5 lbs.) of gold were used for filling exclusive of that used for plate and crown work in the Laboratory.

MECHANICAL DEPARTMENT.

Full cases (Clinical, 91—Practice, 657)	748
Partial cases (Clinical, 92—Practice, 873)	965
Pivot teeth and Crown Work (Clinical, 163—Practice, 1260)	1,423
Repairing cases	188
Gold Bridge Work	50
Practice Bridge Work	140
Interdental Splints	104
Regulating Plates	294
Total	3,912

* The figures here given are for the Session of 1897–98.

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ESTIMATE OF EXPENSES.

FIRST YEAR.

Fees, Department of Dentistry	$105 00
Deposit, Chemical Laboratory	5 00
Books for entire course	30 00
Instruments	60 00
Deposit for lockers	2 00
Materials for Histological and Mechanical Work	6 00
Board, 35 weeks at $5.00	175 00
Washing, 35 weeks at 75 cents	26 25
Total, first year	$409 25

SECOND YEAR.

General ticket	$100 00
Dissecting ticket	10 00
Dissecting two parts	2 00
Dental Engine (Instrument)	50 00
Additional instruments, about	25 00
Possibly, two Quizzes	14 00
Deposit for lockers	2 00
Material for Mechanical Work	2 00
Board, 35 weeks at $5.00	175 00
Washing, 35 weeks at 75 cents	26 25
Total, second year	$406 25

THIRD YEAR.

General ticket	$100 00
Graduation fee	30 00
Class expenses, Cap, Gown and Hood	10 00
Deposit for lockers	2 00
Material for Mechanical Work	2 00
Board, 37 weeks at $5.00	185 00
Washing, 37 weeks at 75 cents	27 75
Total, third year	$356 75

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DEPARTMENT OF VETERINARY MEDICINE.

FACULTY.

CHARLES C. HARRISON, LL. D., PROVOST.

——— ——— ——— VICE-PROVOST.

HORATIO C WOOD, M. D., LL. D., Professor of Materia Medica, Pharmacy and General Therapeutics.

EDWARD T. REICHERT, M. D., Professor of Physiology.

JOHN GUITÉRAS, M. D., Professor of General Pathology and Morbid Anatomy.

JOHN MARSHALL, M. D., NAT. SC. D., Professor of Chemistry and Toxicology.

SIMON J. J. HARGER, V. M. D., Professor of Veterinary Anatomy and Zoötechnics.

LEONARD PEARSON, B. S., V. M. D., Professor of the Theory and Practice of Veterinary Medicine, and DEAN OF THE FACULTY.

JOHN W. ADAMS, A. B., V. M. D., Professor of Veterinary Surgery and Obstetrics.

LECTURERS.

ALEXANDER GLASS, V. S., Lecturer on the Theory and Practice of Canine Medicine.

ROBERT FORMAD, M. D., V. M. D., Lecturer on Veterinary Sanitary Science, and Demonstrator of Normal and Pathological Histology and of Morbid Anatomy.

MILTON E. CONARD, V. M. D., Lecturer on Veterinary Obstetrics, and Demonstrator of Veterinary Surgery.

W. HORACE HOSKINS, D. V. S., Lecturer on Veterinary Jurisprudence, Ethics and Business Methods.

MAZYCK P. RAVENEL, M. D., Lecturer and Demonstrator in Veterinary Bacteriology.

DEMONSTRATORS.

EDWIN S. MUIR, PH. G., V. M. D., Instructor in Veterinary Materia Medica and Pharmacy.

B. FRANK SENSEMAN, V. M. D., Demonstrator of Veterinary Anatomy.

JOHN W. HARSHBERGER, PH. D., Instructor in General Biology, Botany and Zoölogy.

CLARENCE J. MARSHALL, V. M. D., Demonstrator of the Theory and Practice of Veterinary Medicine.

HENRY D. MARTIEN, V. M. D., Assistant Demonstrator of Veterinary Anatomy.

FRANZ ENGE, Demonstrator of Forging and Horseshoeing.

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EQUIPMENT.

This department provides a thorough education in all that pertains to Veterinary Medicine. Its facilities for instruction are unsurpassed in this country, and its courses extend from the first elements of Medicine to the latest researches in Veterinary Science at home and abroad. At every step the student is drilled under the personal guidance of professors in all the practical and technical details of the profession. Too much stress cannot be laid on the importance of thus combining theory and practice. It is solely by thorough and extensive training in this way that the practitioner can meet the complex problems of Veterinary Pathology—problems which, owing to the absence of communication between the practitioner and his patients, demand a higher degree of trained powers of observation than the usual cases of ordinary medical practice.

The buildings have a street frontage of over 600 feet, and consist of two spacious amphitheatres, museum, dissecting-room, histological, botanical, biological and pharmaceutical laboratories, blacksmith shop with eight forges, etc. The floors are laid in cement with the most approved drainage. The Hospital in which clinical teaching is conducted will accommodate over fifty horses, or other large animals.

A building known as the Hospital for Small Animals is provided with every facility for the treatment of dogs and other small animals. Throughout the building there are polished granolithic floors and wainscoting of enameled tile to a height of five feet. The Hospital is heated by steam, and there is a complete supply of hot and cold water in each room, separate rooms being provided for baths. The rooms in this building are non-communicating, so that it is possible to isolate animals suffering with contagious diseases.

ADMISSION.

Candidates who have received a collegiate degree, or who have passed the matriculate examination of a recognized college; or who have a certificate covering the requirements stated below, from a recognized normal or high school, are admitted without examination.

Other candidates for admission are required: (1) to write an essay of about three hundred words, as a test of Orthography and Grammar; (2) to pass an examination in Elementary Physics (as in Gage's *Physics*).

Graduates of recognized Medical schools, or of recognized Veterinary schools requiring three years' attendance, may enter the

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third year without examination. Students who have attended one or more sessions in a recognized Veterinary or Medical school will be allowed credit for time, but must pass an examination upon entering.

Graduates of recognized colleges of Pharmacy are admitted to the first year without an entrance examination, and on passing examinations in General Chemistry and Materia Medica and Pharmacy, are excused from attending lectures in those branches, and from performing the practical work of the first year in the Chemical and Pharmaceutical laboratories.

SCHOLARSHIPS.

I. STATE SCHOLARSHIPS.—There are twelve State scholarships, founded by the Trustees in 1889, and granted on nomination of the Governor of the Commonwealth to residents of Pennsylvania. They entitle the holder to free tuition in the regular Veterinary course. Candidates are subject to the same conditions of admission as other students. These conditions must be fulfilled, and the Governor's certificate of nomination presented, on or before October 1 of each year.

II. CITY SCHOLARSHIPS.—Under agreement with the city of Philadelphia, fifty free scholarships exist in the University for the benefit of students from the public schools. The candidates for these scholarships are examined by the Board of Public Education, and award is made to those who reach the highest grade in examination, whenever vacancies occur from year to year.

COURSE OF STUDY.

The course of instruction extends over three years, with one session beginning on the first of October (or on October second, if the first falls on Sunday), and ending on the second Wednesday in June of each year. The following are the studies:

FIRST YEAR.—*General Chemistry, Materia Medica and Pharmacy, Horseshoeing, General Biology, Physiology, Histology and Veterinary Anatomy.*

Examinations in all of the foregoing studies are held at the end of the First year.

SECOND YEAR.—*Medical Chemistry, Botany, Physiology, Therapeutics, General Pathology and Morbid Anatomy, Practical Bacteriology, Veterinary Anatomy, Zoölogy, Veterinary Surgery, Theory and Practice of Veterinary Medicine, Theory and Practice of Canine Medicine.*

Examinations at the end of the Second year: *Medical Chemistry,*

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Veterinary Anatomy, Physiology, Pathological Histology, Botany and Zoölogy.

THIRD YEAR.—*Therapeutics, General Pathology and Morbid Anatomy, Bacteriology, Veterinary Surgery and Operative Surgery, Theory and Practice of Veterinary Medicine, Theory and Practice of Canine Medicine, Veterinary Sanitary Science, Obstetrics, and Zoötechnics.*

Examinations at the end of the Third year: *Theory and Practice of Veterinary Medicine, Veterinary Surgery and Operative Surgery, Obstetrics, Therapeutics, General Pathology and Morbid Anatomy, Zoötechnics, Theory and Practice of Canine Medicine, and Veterinary Sanitary Science.*

In the second year the student attends clinics, and serves as aid in the Hospital; in the third year he is placed in charge of sick animals, and is required to prepare clinical reports and make autopsies. He also makes visits to breeding and dairy farms, and to slaughter-houses, in order to familiarize himself with the races of animals, the economical means employed in their care, and the varieties of butcher meat. Graduates of the Department of Veterinary Medicine are admitted to the third-year class of the Department of Medicine, with the understanding that they pass the examination for matriculation in the Department of Medicine in force at the time they enter the Department of Medicine, and that they perform the required amount of dissecting, and pass the examination in Human Anatomy. Of the third-year studies of the Department of Medicine, they are exempt from the practical work and examination in Pathology and Morbid Anatomy.

TEXT AND REFERENCE BOOKS.

FIRST YEAR.

CHEMISTRY.—Richter's Inorganic Chemistry; Fowne; Medicus' Qualitative Analysis (fourth edition).

MATERIA MEDICA AND THERAPEUTICS.—H. C Wood, Finlay Dun's Veterinary Medicine; Mann's Prescription Writing.

ANATOMY.—Chauveau's Comparative Anatomy; Harger's translation of Goubaux and Barrier's Exterior of the Horse.

HISTOLOGY.—Piersol's Text-book of Histology.

PHYSIOLOGY.—Robert Meade Smith's Physiology of the Domesticated Animals; American Text-book of Physiology.

HORSESHOEING.—Adams' translation of Lungwitz on Horseshoeing; Fleming; Dollar's translation of Leisering and Hartman's Foot of the Horse.

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SECOND AND THIRD YEARS.

THEORY AND PRACTICE OF VETERINARY MEDICINE.—Friedberger and Froehner's Pathology and Therapeutics of Domestic Animals; Robertson's Practice of Equine Medicine; Williams' Principles and Practice of Veterinary Medicine; Fleming's Manual of Veterinary Sanitary Science and Police; Glass' translation of Müller's Diseases of the Dog.

SURGERY.—Moeller's Operative Veterinary Surgery; Fleming's Operative Veterinary Surgery; Williams' Principles and Practice of Veterinary Surgery; Zundel on the Horse's Foot (translated by Liautard).

MEDICAL CHEMISTRY.—Marshall's Second-year Notes; Greene; Tyson's Practical Examination of the Urine; Marshall and Smith's Chemical Examination of the Urine; Remsen's Organic Chemistry.

BOTANY.—Bessey's; Gray's Lessons and Manual.

ZOOLOGY.—Nicholson's Manual.

OBSTETRICS.—Fleming; Dalrymple.

ROSTERS.

FIRST YEAR.—1898-99.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
9 A. M.				Dissection.	Dissection.	Dissection.
10 A. M.	***Marshall.** Chemistry.	***Marshall.** Chemistry.	***Marshall.** Chemical Lab.			
11 A. M.		**Muir.** Materia Medica.		***Guiteras.** General Pathology.		
12 M.	**Harger.** Anatomy.	Clinical Conference.		**Harger.** Anatomy.	**Harger.** Anatomy.	
2 P. M.	**Harshberger.** Laboratory, Gen. Biology. Until February 1st. **Muir.** Pharmaceut'l Laboratory. After February 1st.	**Muir.** Pharmaceut'l Laboratory. Until February 1st. **Formad.** Histological Laboratory. Two hours. After February 1st.	**Harshberger.** Laboratory, Gen. Biology. Until February 1st.	**Formad.** Histological Laboratory. After February 1st.	Dissection.	
3 P. M.					***Physiology** Demonstrat'n.	
4½ P.M.		***Reichert.** Physiology.		***Reichert.** Physiology.		
7 to 9½	Dissection.	Dissection.	Dissection.	Dissection.	Dissection.	

Lectures marked * are delivered in the Department of Medicine.

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SECOND YEAR.—1898-99.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday.*	*Friday.*	*Saturday.*
8 A. M.	**Pearson.** Clinic.	**Adams.** Clinic.	**Harger.** Clinic.	**Pearson.** Clinic.	**Adams.** Clinic.	**Harger.** Clinic.
9 A. M.						
10 A. M.	**Pearson.** Practice.	***Gulteras.** Morbid Anatomy.	**Adams.** Horseshoeing.	***Marshall.** Medical Chemistry.	***Gulteras.** Morbid Anatomy.	***Marshall.** Chemical Laboratory.
11 A. M.	***Gulteras.** Bacteriology.	**Adams.** Surgery.	**Adams.** Surgery.	**Ravenel.** Bacteriology.	**Adams.** Surgery.	
12 M.	**Harger.** Anatomy.	Clinical Conference.	**Pearson.** Practice.	**Harger.** Anatomy.	**Harger.** Anatomy.	
2 P. M.	**Harshberger.** Laboratory, Botany. Two hours. After Feb. 1st. 2–3½.	**Pearson.** Practice.	**Harshberger.** Botany.	**Glass.** Canine Practice. 2–3. After Feb. 1st.	**Ravenel.** Practical Bacteriology.	
3 P. M.			**Glass.** Canine Prac. 3–4. Until Feb. 1. **Harshberger.** Laboratory, Botany. After Feb. 1st. 3–4½.	**Formad.** Pathological Histology Laboratory. Before February 1st. 2–4½.		
3½ P. M.	**Harshberger.** Zoölogy.					
4½ P. M.	***Reichert.** Physiology.	*Physiology. Demonstrat'n.	**Harshberger.** Zoölogy. Until Feb. 1.	***Wood.** Therapeutics.	***Reichert.** Physiology.	
5½ P. M.					***Wood.** Therapeutics.	
7 to 9½	Dissection.	Dissection.	Dissection.	Dissection.	Dissection.	

Lectures marked * are delivered in the Department of Medicine.

THIRD YEAR.—1898-99.

Hour.	*Monday.*	*Tuesday.*	*Wednesday.*	*Thursday*	*Friday.*	*Saturday.*
8 A. M.	**Pearson.** Clinic.	**Adams.** Clinic.	**Harger.** Clinic.	**Pearson.** Clinic.	**Adams.** Clinic.	**Harger.** Clinic.
9 A. M.						
10 A. M.	**Pearson.** Practice.	***Gulteras.** Morbid Anat.	**Formad.** Morbid Anat. Demonstrat'ns Autopsies.	**Conard.** Obstetrics.	***Gulteras.** Morbid Anatomy.	**Harger.** Zoötechnics.
11 A. M.	***Gulteras.** Bacteriology.	**Adams.** Surgery.	**Adams.** Surgery.	**Formad.** Sanit. Science.	**Adams.** Surgery	
12 M.	**Hoskins.** Jurisprudence. Ethics.	Clinical Conference	**Pearson.** Practice.			Hospital Visit.
2 P. M.	Field Work.	**Pearson.** Practice.		**Glass.** Canine Prac. After Feb. 1st.	**Adams.** Operative Surgery.	
3 P. M.			**Glass.** Canine Prac. Until Feb. 1st.	**Adams.** Operative Surgery.		
4 P. M.			**Adams.** Oper Surgery. After Feb. 1st. 2–4½.			
4½ P. M.	Hospital Visit.	Hospital Visit.	Hospital Visit.	***Wood.** Therapeutics.	Hospital Visit.	
5½ P. M.				Hospital Visit.	***Wood.** Therapeutics.	

Lectures marked * are delivered in the Department of Medicine.

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SUBJECTS OF INSTRUCTION.

CHEMISTRY.

CHEMICAL LABORATORIES.—The working laboratories for Practical Chemistry are in a special laboratory building, and are under the supervision of the Professor and the Assistant Professor of Chemistry, with assistants. Students of the First-year Class devote three hours each week in the laboratory to the study of Qualitative Analysis. The course includes chemical manipulations, and the detailed study of the chemical reactions of the principal metals, acids, and their combinations; with the general principles of Qualitative Analysis, especially as they relate to the detection and separation of metals, and compounds of importance in Veterinary Medicine.

Students of the Second-year Class devote three hours per week to practical work in the laboratory. The course embraces an introduction to the general principles of Quantitative Analysis and the principles of Volumetric Analysis, with the practical examination of urine and an mal fluids, and the recognition and recovery of poisons from the animal body and from complex mixtures.

MATERIA MEDICA AND PHARMACY.

Materia Medica is taught in a series of about thirty-five lectures by the Instructor in Materia Medica, and Pharmacy is taught by lectures and practical work in the Pharmaceutical Laboratory. These courses include the study of all the drugs and preparations in the U. S. Pharmacopœia that are of use in Veterinary Medicine; with the addition of other remedies, the use of which is adapted especially to any one class of animals studied in Veterinary Medicine (Herbivora or Carnivora). The student is required to handle the various drugs, in order to recognize their physical characteristics; to make the ordinary pharmaceutical preparations (infusions, tinctures, extracts, powders, balls, ointments and blisters); and is instructed practically in the manual required for the administration of remedies in powder, ball or fluid form to the Horse, Ox, Hog, and Carnivora.

During the second year, details of two students each, in alphabetical order, serve two weeks in the Pharmacy of the Hospital, and assist in compounding all the prescriptions used in the Department.

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PHYSIOLOGY.

The course in Physiology consists of lectures and demonstrations, in which the chemical and physical processes and constituents of the animal body are considered, and the different functions traced from their appearance in the lowest animal forms to their highest development in the domestic animals and man. Especial attention is given to the nutritive functions in the domestic animal, rules being given for the adjustment of diet to the work required of the animal, whether in beasts of burden, milk or wool producers, or in animals destined for food purposes. The lectures are fully illustrated by experiments, diagrams and tables. In connection with the course, the students are required to work in the Physiological Laboratory, where they study the chemical properties and general characteristics of foodstuffs, the analysis of milk, the action of the digestive juices, etc., etc.

The Physiological Laboratory is fitted with the most approved instruments for physiological research, and opportunity is offered to advanced students for conducting original research under the immediate supervision of the Professor.

GENERAL BIOLOGY.

In this course students are given practical training in the methods employed in biological research. They are thus prepared to undertake the study of botany, zoölogy, histology, embryology, etc., without loss of time, and with considerable facility in the use of the instruments and processes required in these branches. This is especially true in the bearing of the training on the histological work that is required of veterinarians.

The consideration of the structure of plants and animals is approached by analysis into regions, parts, organs, tissues, cells; the synthetic method is then adopted, and the careful study of cell activities, cell modifications, cell aggregates, leads to an appreciation of the importance of comparative anatomy for purposes of classification, for the comprehension of the development, descent, and evolution of plant and animal forms. Method is impressed by a study of a series of types, and an endeavor is made to furnish students with clear abstract ideas of systematic groups, by the observation of as large a number of individual forms as possible. In short, the purpose of this course is to impress upon the student's mind the fundamental truths of biology; to train him in its methods, and to teach him the value of the connection between medicine and biological sciences.

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BOTANY.

The Botanical instruction requires five hours per week during the second half of the second year.

Two objects are kept in view. The first is to give such a general idea of the anatomy and physiology of plants, of the principles of classification, and of the doctrines of evolution, as are essential to every one claiming to have a scientific education. This should be gained by the course of forty lectures in which these subjects are carefully treated.

The second object is to train observers, as well as to teach the practical relations of forage plants, "loco" plants and noxious weeds to the veterinary art. It cannot be impressed too fully upon the student that, owing to the intimate relations between agriculture and veterinary medicine, his future prosperity and usefulness may be determined largely by his ability to recognize promptly plants known or supposed to be injurious to our domestic animals. Certain varieties of plants are the cause each year of immense loss to stock-raisers of the United States. There is much to be learned and taught as to the relative nutritive values of the forage plants, and also of the fungi destructive thereto, of every region of the country. Some grasses sold as forage can be shown to be absolutely injurious, and these the veterinarian should be competent to recognize. To meet this object the student has, during the second year of his course, four hours' drill each week during half of the session in the observation and description of plants. This work is done in the laboratory, each student being provided with a dissecting microscope.

ZOOLOGY.

General Zoölogy and Comparative Anatomy embrace the study of the animal kingdom: the organic cell, and its aggregates; a short account of the tissues, and their production; organs: their structure, reproduction; general facts of Embryology, metamorphosis, alternation of generation, polymorphism and heterogeny; systems of classification, the evolution theory, species and varieties; with a succinct account of the various groups of animals, their anatomy, development, and distribution.

Practical demonstrations are given of the characteristics of the organs in the various animal types, in order to prepare the student for original zoölogical research.

ANATOMY.

The instruction in Descriptive Anatomy extends over two entire sessions, and embraces the study of the bones, articulations,

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muscles, digestive tract, respiratory apparatus, urino-genital organs, organs of circulation of the blood and lymph, nervous system, organs of special sense, and Embryology of the Horse, the Mule, the Ass, the Ox, the Sheep and Goat, Hog, Dog, Cat and Poultry. Constant dissection is required. The horse is used as the type until the parts have been thoroughly learned, and the student is then given other animals, to learn existing differences. During the first year the dissections are made with special reference to the bones, articulations, and muscles, while the second year is devoted to blood-vessels and nerves. The dissections are under the supervision of the Professor of Anatomy, aided by the Demonstrators. A detail is made of students of the Second-year Class, who dissect in the laboratory of the Professor of Anatomy, and prepare the parts to be used in his lectures.

The dissecting-room is unsurpassed in convenience and cleanliness. The floors are of cement, the hot and cold water facilities are ample, and the room is thoroughly lighted during the day by windows on both sides, and at night by gas over each table. Iron wagons with movable posts, allowing the animals to be placed in any required position, serve as dissecting-tables.

HISTOLOGY

is taugh in connection with the Chair of Anatomy. The laboratory is fitted with the most approved apparatus for microscopic and biological research. The anatomical elements are studied from the tissues of each of the classes of domestic animals included in Veterinary Medicine, in order to allow the student to appreciate the minute differences of structure that have been the cause of error in the work of histologists, who have confined themselves to the tissues of a limited number of animals.

HORSESHOEING.

The course in Shoeing for first-year students embraces about twenty lectures illustrated by charts, prepared hoofs and shoes, frequent visits to the shoeing forge, and practical demonstrations upon the living horse at rest and in motion. Instruction is given under the following headings:

THE FOOT.—Bones, joints, ligaments, tendons, blood-vessels, nerves, elastic structures, keratogenous tissues, and horn capsule.

FOOT IN RELATION TO THE ENTIRE LIMB.—Attitude of limb, form of foot and hoof, gait, growth of horn, and hoof mechanism.

TRIMMING OF HOOF, making of shoe, fitting and nailing.

SHOEING for interfering and forging.

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WINTER SHOEING.

HOOF NURTURE.

PATHOLOGICAL SHOEING.—Pricking, nailing, calking, corns, laminitis, keraphyllocele, keratocele.

CHANGES IN FORM OF THE HOOF.—Flat and dropped-sole, upright hoof, contracted heels, wry hoof, crooked hoof, ossification of lateral cartilages.

SOLUTIONS OF CONTINUITY OF HOOF.—Clefts, cracks, loose wall, hollow wall, and thrush.

In addition to shoeing for lameness, a large amount of ordinary shoeing is done at the forges of the Hospital, affording ample experience in methods demanded by different classes of horses, and by the various forms of the horse's foot.

THERAPEUTICS.

This course, extending over two sessions of the Medical Department, is devoted specially to the physiological action of drugs.

GENERAL PATHOLOGY AND MORBID ANATOMY.

Instruction in General Pathology and Morbid Anatomy is given to the students of the Second and Third-year Classes. It consists of lectures: (1) on General Pathological Anatomy, in which are treated the degenerations, atrophy, hypertrophy, inflammations, and tumors; (2) on Special Pathological Anatomy, in which is considered the morbid anatomy of each organ of the body. In addition to this, the students of the Second-year Class are taught practical Pathological Histology in the Pathological Laboratory, while to the students of the Third-year Class are given weekly demonstrations in Microscopic and Gross Morbid Anatomy. For the latter purpose there are always at hand a sufficient number of morbid specimens, both fresh and alcoholic.

THEORY AND PRACTICE.

The instruction in the Theory and Practice of Veterinary Medicine, completed in two years, is given under the following headings:

ORIGIN OF VETERINARY MEDICINE.—History of Veterinary Science and of Veterinary Schools, Medical Doctrines, Classes of Disease.

ETIOLOGY.—Effects on the various domestic animals of Locality, Climate, Food, Water, Habitation, Work, Individual, Race, Sex and Hereditary Disposition, Temperament, Constitution, Existing Causes, Poisons, Specific Causes, Medical Constitution, Idiosyncrasy, and Immunity.

SYMPTOMATOLOGY and SEMIOLOGY.

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PHYSICAL DIAGNOSIS.—Percussion, Auscultation, Examination of Blood and Urine.

DIAGNOSIS.

PROGNOSIS.

AUTOPSIES.

DISEASES OF RESPIRATORY SYSTEM.

CONTAGIOUS AND ZYMOTIC DISEASES.—With the laws of Sanitary Police in force in various parts of the United States and in Europe.

DISEASES OF DIGESTIVE APPARATUS.

" " URINO-GENITAL APPARATUS.

" " NERVOUS SYSTEM.

" " CIRCULATORY SYSTEM.

" " EYE.

" " EAR.

" " SKIN.

PARASITIC DISEASES AND HELMINTHS.

SURGERY.

This branch of Veterinary Medicine is taught to the Second and Third-year Classes by a graded course of didactic lectures, and by clinical instruction, extending over a period of two years.

One year is devoted to General Surgery, and comprises a course of about one hundred lectures. The remaining year is devoted to Special Surgery, and comprises about ninety lectures. In addition, the Second and Third-year Classes are given two hours of Clinical Instruction daily, from 8 to 10 A. M.

The Hospital and free clinics furnish an abundance of material for practical instruction, which is one of the special features of the school. In no other school in America is this mode of instruction as thoroughly carried out as here.

The Senior Class is required to devote ten hours of each week to Practical Operative Surgery, when the *modus operandi* of every operation likely to occur in veterinary practice is taught. Instruction in Bandaging and Dressing is given in connection with Operative Surgery.

The lectures are comprised under the following headings:

GENERAL SURGERY.

INFLAMMATION.—Varieties and Terminations.

INJURIES AND INFLAMMATION OF SOFT TISSUES—

Wounds, their classification and appearance. Hemostasia, Thrombosis and Cicatrization.

Antisepsis.

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Diseases due to wound infection.
Subcutaneous injuries of soft tissues.

GANGRENE, ABSCESS, FISTULA.

DISEASES OF MUSCLE AND TENDON.
" " NERVES.
" " JOINTS.
" " TENDINOUS SHEATHS AND BURSÆ.
" " BLOOD AND LYMPH VESSELS AND LYMPH GLANDS.
" " OUTER SKIN.
" " BONES.

TUMORS—
Connective tissue tumors.
Muscle tumors.
Nerve tumors.
Epithelial tumors.

OPERATIVE SURGERY—
Methods of Casting and Securing Animals.
General and Local Anesthesia.
Methods of Dividing Tissues, Amputations, Exarticulations, etc.
Methods of Uniting Tissues.
Blood-letting and Scarification.
Intravenous, Subcutaneous, Intratracheal and Parenchymatous Injections.
Actual and Potential Cautery.
Castration of Male and Female Animals.

SPECIAL SURGERY.

DISEASES OF THE FORE LIMBS.
Fractures, Shoulder-lameness, Shoe-boil, Splints, Corns, Quittors, Keraphyllocele, Keratocele, Burnt Sole, Pricking, Cracks, Street-nail, Laminitis, Navicular Disease, Thrush, etc.

DISEASES OF HIND LIMBS.
" " HEAD.
" " NECK.
" " BREAST.
" " TRUNK.

SURGICAL DISEASES OF THE STOMACH AND INTESTINES.

DISEASES OF RECTUM AND ANUS.
" " URINARY APPARATUS.
" " MALE GENERATIVE ORGANS.
" " FEMALE GENERATIVE ORGANS.
" " VERTEBRÆ AND PELVIS.

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OBSTETRICS.

A full course of instruction is given in this branch to the Third-year Class, about forty lectures being devoted to this subject. The practical instruction is mainly confined to demonstrations on the manikin; although, whenever possible, cases of natural labor will be used to the best advantage of the student.

The instruction is classified as follows:

OBSTETRICAL ANATOMY.—Anatomy of the hard and soft parts.

ORGANS OF GENERATION.—External—Internal, Reproduction, Fecundation, Changes and Development of the Embryo, Differences in Ruminants, Pig, Bitch and Cat; Gestation, Pathology of Gestation, Diseases of Pregnant Animals, Accidents, Normal Parturition, Presentations, Maternal and Fœtal Dystokia, Diseases of the Fœtus, Monstrosities, Dystokia from Malpresentation, Obstetrical Operations, Accidents of Parturition, Diseases and Abnormalities of the young animal.

ZOÖTECHNICS.

includes the study of the origin and domestication of animals employed for profit by man, the laws of breeding and production, heredity, race characteristics, and individual impression, the effect of climate, aliment, work, and the means to be employed in the selection and handling of animals so as to derive from them the most economical benefit, whether as milk or wool producers, or as articles of food.

VETERINARY SANITARY SCIENCE.

This branch is taught by a series of lectures in which the following topics are fully discussed: origin of Sanitary Science; enzoötic, epizoötic and panzoötic diseases; influence of civilization and traffic on animal plagues; aptitude; immunity, contagion, infection and miasm; their origin, nature, diffusion, reception and mode of access; prevention and suppression of contagious diseases; general prophylactic, preventive and repressive measures; utilization of the carcasses. Disinfection and disinfectants. Inspection of meat: general physical and chemical properties of the meat of various animals used for food; principal qualities of meat; noxious and injurious meat; meat undergoing putrid decomposition; meat in constitutional or blood diseases; meat in cachectic conditions; meat infected with animal parasites; echinococcæ, cysticercus, psorospermine and trichinæ. Meat infected with vegetable parasites; actinomycosis, anthracoid diseases, contagious pleuro-pneumonia, tuberculosis, etc. Inspection of milk; physical properties

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and chemical constituents of milk. Adulterated milk and its detection. Abnormal constituents of milk.

MUSEUM.

The Veterinary Museum has grown rapidly since the organization of the Department, both through the preparations made in the dissecting and post-mortem rooms and through the liberality of veterinarians. Extensive additions have been made during the past year.

HOSPITAL.

The Hospital offers the most extensive and complete accommodations for sick animals to be found in America.

Third-year students are placed directly in charge of cases, and, under the direction of the House Surgeon, keep the clinical records, administer the medicines, attend to the surgical dressings and are allowed, under the supervision of the Clinical Professors, to perform whatever operations are necessary for the safety of the animal. Two students from the Third-year Class are assigned, in alphabetical order, to reside in the Hospital for two weeks at a time. They receive the animals as they enter the clinic of the Hospital.

A detail from the Second-year Class assists in compounding all medicines used in the Hospital.

The large number of animals in the wards of the Hospital, and those from the extensive Free Dispensary practice of the Hospital treated at the clinic daily, from 8 to 10 A. M., furnish abundant material for clinical lectures and practical instruction.

EXAMINATIONS AND DEGREE.

Examinations are held at the close of each year. These the student must duly pass before he is allowed to proceed to the studies of the next year. At the close of the course, and after passing a satisfactory examination, the student receives the degree of *Doctor of Veterinary Medicine* (V. M. D.).

PRIZES.

The J. B. LIPPINCOTT PRIZE of One Hundred Dollars is awarded to the member of the Graduating Class who, in the three years spent in the Veterinary Department of the University, attains the highest general average in examinations.

A PRIZE of an Ecraseur is offered by a friend of the Department to the member of the Second-year Class who passes the best examinations in Veterinary anatomy.

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TUITION FEES AND EXPENSES.

Matriculation Fee (paid once only), five (5.00) dollars. The tuition fee is one hundred (100.00) dollars per annum, to be paid *before November 1.* If the tuition fee is paid on or after November 1, ten (10.00) dollars will be added, making the fee one hundred and ten dollars for the year. Of this amount sixty dollars are to be paid before November 1 and fifty dollars before February 1.

Material for dissection and for operative surgery is charged for at the rate of one (1.00) dollar per part.

At the beginning of the first and second years each student is required to make a deposit of five (5.00) dollars, with the Professor of Chemistry, to cover breakage in the chemical laboratories. Any balance remaining is returned. *At least twenty-five dollars must be paid on account of tuition before the student will be admitted to the Chemical Laboratory.*

First Year.

Matriculation Fee	$5 00
Tuition Fee	100 00
Dissecting Material, about	5 00
	$110 00

Second Year.

Tuition Fee	100 00
Dissecting Material, about	5 00
	$105 00

Third Year.

Tuition Fee	100 00
Material for Operative Surgery, about	8 00
	$108 00

Books and instruments in the first year of the course will cost about $28.00; in the second year they will cost about $25.00; and in the third year the case of surgical operating instruments, about $31.00. All of the instruments used in the course will be needed by the graduate in the practice of his profession.

For further information, apply to

LEONARD PEARSON, Dean,
Thirty-sixth and Pine Streets, Philadelphia.

Office hours: 8.30 A. M. to 12 M., daily.

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VETERINARY HOSPITAL OF THE UNIVERSITY OF PENNSYLVANIA.

Thirty-Sixth and Pine streets, Philadelphia.

BOARD OF MANAGERS.

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WILLIAM H. MCNEALL, V. M. D., Resident Surgeon.

FRANK R. TROWBRIDGE, Clerk to the Hospital.

The Veterinary Hospital of the University of Pennsylvania is supplied with every facility for the best handling and care of sick and injured animals of all kinds. Animals are admitted into the Hospital at any time, day or night.

An ambulance is provided for the conveyance of sick and lame horses. For this service the charges are made according to distance traveled.

A free dispensary clinic is conducted by the members of the Hospital Staff daily, except Sunday, between 8 and 10 A. M.

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The animals are under the professional care of the Hospital Staff and of the Resident Physician.

3751 animals were treated in the Hospital during the year ending August 31, 1898.

A competent farrier is attached to the Hospital, who is prepared to do a limited amount of ordinary shoeing, in addition to shoeing for lameness; the latter *only* under the direction of the Hospital Staff.

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THE LIBRARY.

MORRIS JASTROW, JR., PH. D., Librarian.

CATALOGUING DEPARTMENT.

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READING-ROOM AND CIRCULATION DEPARTMENT.

FRANCES F. TIMNEY,
CHARLOTTE E. STEWART.

ORDER DEPARTMENT.

CLARA N. PERINE.

The Library is one of the original Departments of the University, possessing among its treasures works presented to the Academy of Philadelphia in 1749; others purchased by a committee, of which Benjamin Franklin was Chairman, in 1750; and still others given by the Rev. William Smith, D. D., first Provost of the College and Academy of Philadelphia, by Louis XVI. and by other early friends and patrons. It now contains over 140,000 bound volumes, and a large number of unbound volumes and pamphlets.

Special libraries obtained through gift or purchase form the basis of collections as follows:

Philosophy,
Spiritualism,
United States Laws,
Law,
Economics,
Philology,
Classical Literature,
English Literature,
Germanics,
Italian Literature,
Semitics,
Chinese and Japanese,
Chemistry,
Biology and Zoölogy,
Geology and Paleontology,
Mathematics,
Civil and Mechanical Engineering,
Medicine,
Horsemanship,
American History,
Official Publications of the United States and Great Britain.

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The KRAUTH LIBRARY, founded by the Society of the Alumni in honor of the late Vice-Provost of the University, the Rev. Charles P. Krauth, D. D., and the BENJAMIN BARTIS COMEGYS, JR., LIBRARY, comprehend the subjects of Intellectual and Moral Philosophy.

The HENRY SEYBERT LIBRARY of Modern Spiritualism embraces a large collection of works on that and cognate subjects.

The GEORGE BIDDLE AND ALGERNON SYDNEY BIDDLE MEMORIAL LIBRARY comprises the noted collection of American, English, Scotch and Irish Reports, numbering over 5000 volumes, formerly the property of the Hon. Benjamin H. Brewster, and the gift of George W. Biddle and family, in memory of the late George Biddle and Algernon Sydney Biddle. Provision has been made for the annual increase of this library, which now comprises over 20,000 books. There are also many works on Roman Jurisprudence and the Civil Code, from the library of the late Judge Bouvier, presented by his son-in-law, R. E. Peterson, M. D., The BIDDLE LIBRARY constitutes the library of the Department of Law, and is housed in the building of that department.

The COLWELL LIBRARY, the munificent gift of the late Stephen Colwell, consists of over 7000 volumes, and is one of the most complete collections of works on Finance and Political Economy in the world. It contains nearly everything of importance on these subjects in the English, French and Italian languages published before 1860. It is supplemented by the CAREY LIBRARY, the bequest of the late Henry C. Carey, which embraces many books of more recent date. It is especially rich in statistics, European government reports, and the like, and includes about 3000 English pamphlets, bound in chronological order, and covering the period from the close of the seventeenth century to our own time. The pamphlets were presented to Mr. Carey by Mr. McCalmont, of London.

The ALLEN LIBRARY includes about 5000 volumes relating to Bibliography, Greek and Latin Literature, Military Science, and Shakespeare, selected with great care by their former owner, the late Professor George Allen, LL. D., of the University.

The POTT LIBRARY, purchased by private subscription, embraces the philological library of the late Professor F. A. Pott, of the University of Halle, and contains about 4000 works, representing almost every language and dialect of any prominence.

The LEUTSCH LIBRARY, formerly the property of the late Professor Ernst von Leutsch, of Göttingen, comprises about 20,000 volumes, and is one of the finest classical libraries in America.

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The J. B. LIPPINCOTT LIBRARY, founded by the family of a late Trustee of the University, embraces an ever-growing collection of books on English Literature.

The BECHSTEIN LIBRARY, comprising books relating to German Philology and Literature, contains about 15,000 volumes and pamphlets. This collection is particularly rich in standard editions of the works of all the representative German writers from the beginning to the present time. The special features of the collection are reviews and publications of learned societies (including about fifty complete sets), and the unique *Handapparat* of the late Professor R. Bechstein, of the University of Rostock, containing about 3000 pamphlets relating to German Philology and Literature.

A recent valuable accession is the library of the late FRANCIS C. MACAULEY, bequeathed by him to the University. It comprises his noted Dante and Tasso collections, and a large number of Italian, Spanish and Portuguese works, amounting to about 5500 bound volumes, pamphlets and periodicals.

The Library of Semitic Philology and Literature comprises copious collections in Arabic, Assyrian, Hebrew and Semitic Epigraphy. The nucleus of a manuscript collection has been formed through the purchase of Arabic and Ethiopic manuscripts.

The MCCARTEE LIBRARY comprises nearly 1000 volumes in Chinese and Japanese, and over 200 in European languages concerning the history and literature of China and Japan.

The WETHERILL LIBRARY consists of works on Chemistry.

The HAYDEN, LEIDY and RYDER LIBRARIES comprise works on Geology, Paleontology, Biology, Zoölogy and Botany.

The valuable Biological library of the late Professor E. D. COPE was, by his will, conveyed to the University. It includes about 3000 volumes, and is especially rich in works on Vertebrate Anatomy and Paleontology.

The KENDALL LIBRARY of Mathematics is the gift of Professor E. Otis Kendall.

The EVANS ROGERS LIBRARY is composed of standard works on drawing, mathematics, astronomy, physics, surveying and explorations; as well as of technical works on roads, strength and properties of materials, railroads, tunnels, canals, water supply, drainage, architecture, mechanics, navigation, harbor improvements, and park and landscape engineering. It contains also a valuable collection of reports of American, English and French Engineering Societies, periodicals, Coast Survey and hydrographic charts, maps, diagrams, and drawings.

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The STILLÉ and WILLIAM PEPPER LIBRARIES embrace works on the subject of Medicine.

Fairman Rogers, Esq., has presented to the Library his large and valuable collection of works on Horses and Equitation.

The collection of books relating to American History and Institutions consists of about 12,000 volumes, classified and arranged as follows: National Documents, a practically complete legislative record of the Government of the United States, 1789 to date; State Documents; Canadian Public Documents, 1843-1890; Municipal Ordinances and Documents of American Cities; the Laws of the States and Territories, 1840-1890; the Laws of the United States; the John A. Jameson Library of American Constitutional Conventions, Debates, Journals, etc.; the Robert Purvis Collection of Anti-Slavery Literature, the Friends' Library; works on American History and Government; works of American Statesmen; and a small collection of pamphlets and newspapers.

Large additions have been made to the University collections of public documents of foreign countries. Among the more important may be mentioned a complete set of Hansard's Parliamentary Debates, presented by the HON. WILLIAM POTTER, 900 volumes of French legislative documents; and the entire proceedings and other documents of the Reichstag since the founding of the German Empire.

Valuable additions have been made to the departments of history and literature from the income of the TOBIAS WAGNER LIBRARY FUND, given to the University in memory of a deceased Trustee.

The ISAAC NORRIS LIBRARY comprises a steadily increasing number of books in various departments.

The CRAWFORD LIBRARY, the gift of Major-General Samuel Wylie Crawford, M. D., LL. D., consists of over 1000 volumes on a great variety of subjects, literary, scientific and historical.

Mrs. Julia Biddle has bequeathed to the University the library of her husband, the late THOMAS A. BIDDLE. It consists of nearly 1800 volumes of standard English and French Literature, including many handsomely illustrated works.

In exchange for copies of various University publications, the Library is in annual receipt of those issued by other educational institutions, both home and foreign, including the dissertations of nearly all the German universities. From the Institut de France, the Library has received an almost complete set of the *Mémoires, Extraits* and *Notices* issued by the *Academie des Inscriptions et Belles Lettres;* and from the *Ecole Pratique des Hautes Etudes,* a complete set of its publications to date.

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The Library is open daily, except Sundays and holidays, from 8.30 A. M. to 6 P. M., and both professors and students (the latter upon presenting their matriculation cards) are permitted to take out books. Graduates of all departments of the University, and other persons recommended by officers of the University, are granted the same privilege, on the annual payment of three dollars. The Library is open freely to the public for consultation. The office hours of the Librarian are from 9.30 A. M. to 1 P. M.; * * * hours of the Librarian are from 9.30 A. M. to 1 P. M., except Saturdays. On Saturdays from 9.30 A. M. to 11 A. M.

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UNIVERSITY PUBLICATIONS.

The several publications of the University of Pennsylvania are as detailed below:

Group I.—Annual Publications.

University Catalogue (published in December).

Fasciculi of the Departments of Philosophy (Graduate School), Law, Medicine, Dentistry and Veterinary Medicine; also Circulars of Information concerning courses offered in the College; No. 1 (School of Arts); No. 2 (Towne Scientific School); No. 3 (Courses for Teachers).

Report of the Provost (published in January).

Group II.—Serial Publications.

Series in Philology, Literature and Archæology.
Series in Philosophy.
Series in Political Economy and Public Law.*
Series in Botany.
Series in Zoölogy.
Series in Mathematics.
Series in Hygiene.
Series in Astronomy.
University Bulletin (monthly).

Group III.—Occasional Publications.

Reports of the Museums of Archæology and Paleontology.
Theses presented for the Degree of Doctor of Philosophy.

†*Group IV.—Affiliated Publications.*

Annals of the American Academy of Political and Social Science.
Americana Germanica (quarterly).
Bulletin of the Free Museum of Science and Art (quarterly).
Translations and Reprints from the Original Sources of European History (occasional).
American Law Register (monthly).

Group I consists of publications issued annually under the direct auspices of the Provost and Trustees.

* Beginning with New Series, No. 1.
† For exchange purposes *only*.

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The University Catalogue contains detailed information concerning all departments, lists of officers and students with addresses, etc. No charge is made for the Catalogue, *but in all cases requests for a copy by mail* (EXCEPT FROM ALUMNI) *must be accompanied by ten cents in stamps to cover postage.*

The Fasciculus of each department contains information concerning that department *only;* while the three College Circulars of Information, covering respectively the School of Arts, the Towne Scientific School, and the Courses for Teachers, are in like manner restricted as to their contents. The Fasciculi and College Circulars are published separately after the University Catalogue, of which they are, to a large extent, reprints. Single copies are mailed free upon request.

The Report of the Provost, made by him annually to the Corporation, constitutes a general review of University activities during the year, and contains *inter alia* reports from the Treasurer and the several Deans. Single copies are mailed free upon request.

Group II consists of a number of serial publications in the several fields of literature, science and philology. They are issued in separate series at irregular intervals (for the most part), and represent the results of original research by, or under the direction of, members of the staff of instruction of the University. *Group II* is published under the editorial supervision of the University Publications Committee.

Group III consists of occasional publications, such as reports of the various University departments (when printed separately), and certain theses presented in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Group IV consists of affiliated publications, issued as separate periodicals, not under the control of the University, but edited in part by officers of the University of Pennsylvania.

EXCHANGE BUREAU.

In connection with its publications, the University maintains an Exchange Bureau. Through the medium of this Bureau, the publications noted under the various group headings are distributed to some one hundred and twenty-five home and foreign universities and learned societies, which, in exchange, forward to the University Library publications embodying the results of original research, etc., put forth under their several auspices. Much valuable material is thus added to the shelves of the Library, while the exchange system

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enables the University to extend its own sphere of usefulness, and at the same time to come into close contact with the best centres of educational activity, both at home and abroad.

All correspondence relating to the publications of the University, or to the management of the Exchange Bureau, should be addressed to J. HARTLEY MERRICK, Assistant Secretary, University of Pennsylvania, Station B, Philadelphia.

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DEPARTMENT OF ARCHÆOLOGY AND PALEONTOLOGY.

President:

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MRS. JONES WISTER,
STUART WOOD.

The Museum of Archæology and Paleontology was organized in 1889 to provide for instruction and original research in these branches, and for the incidental formation of illustrative collections. In 1891, in consequence of the great interest manifested in this Museum, and the successful extension of its work, it was constituted a Department of the University.

By ordinance approved March 30, 1894, the city of Philadelphia transferred to the University a tract of eight acres of land in trust, to maintain as a Park and Botanic Garden, and to erect thereon a Museum of Science and Art. By ordinance of City Councils, October 29, 1895, an additional piece of ground measuring one and

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two-sevenths acres was made over by the City to the Trustees upon the same terms as the former grant.

In 1895 the Trustees of the University secured from the Legislature an appropriation, $150,000 of which was to be devoted to the erection of a Museum building. This grant from the State was coupled with a condition that an equal amount be raised from private sources. This condition has been more than complied with, and owing to generous contributions, $210,000 have been secured.

The complete plans for the new Museum call for an extensive group of buildings, so arranged as to be capable of construction by sections. They will cover ultimately almost twelve acres of ground, the total cost being estimated at $2,250,000. The northwestern section, situated at Thirty-fourth and Spruce streets, was begun in 1897, and will be ready for occupancy in the late spring of 1899. The cost of this section, when finished, will be about $450,000.

The Museum is divided into seven sections, each one of which is in charge of a Curator.

The American collections illustrate the prehistoric antiquities of the United States. The results of explorations conducted by the Department in Florida, Yucatan, Peru, the Arctic regions, and the valley of the Ohio, are also accessible to students; as well as the Hazzard Collection from the Cliff Dwellers of Mancos Cañon in southwestern Colorado, which is a gift from Mrs. Phebe A. Hearst. This very perfect and important series contains almost every object used by one of the most highly advanced of the early American peoples, and is supplemented by extensive collections of modern Indian specimens arranged for the purpose of comparison.

The Section of Asia and General Ethnology contains series of objects from Eastern Asia, Africa and Polynesia, and a special collection of the games of all parts of the world. Many important accessions have been recently made to this section, and special series have been undertaken in many lines by specialists, intended to illustrate the usages of various countries and periods. Owing to lack of space, these collections are not at present on exhibition.

The Babylonian Section contains a large and extremely valuable collection of antiquities, the greater portion of which are the result of extensive excavations of the ruins of Niffer, in Central Babylonia. Much time and labor has been expended in a thorough exploration of the principal mound of these ruins, which covers the temple of Bêl, presumably the oldest sanctuary in Babylonia.

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Among the most important objects thus secured may be mentioned about thirty-five thousand cuneiform documents in clay. The Babylonian Museum is the most important in America, and ranks immediately after the British Museum and the Louvre. The cuneiform documents of the fourth and second millennium B. C. can nowhere be studied to greater advantage. Hundreds of terra-cotta and glass vases; Hebrew and Syriac bowls; about 700 fragments of the most ancient inscribed stone vases and votive tablets; nearly 600 seal-cylinders; clay coffins; charms; a large amount of gold and silver jewelry, and other objects of art; all serve to illustrate the life and customs of the ancient inhabitants of Mesopotamia, and of the Semites in general. The committee in charge has obtained from the Sultan a renewal of the firman granting permission to continue its excavations at Niffer. The funds have been secured, and the expedition is now on its way to renew its labors for a term of two years.

The Section of Casts has acquired many valuable reproductions of important Central American monuments, from Quirigua and Copan. It has also secured a series of casts of the great bas-reliefs of Trajan's arch at Beneventum. The Section has been compelled for the time being to discontinue its efforts, owing to lack of storage space. Having a surplus on hand, however, the committee in charge has assisted the Mediterranean Section in securing an important collection of marble statuary found in the neighborhood of Lake Nemi, on the site of the temple of Diana Arecina. This collection, obtained mainly through the liberality of Mrs. Lucy Wharton Drexel, includes an exquisite statue of a faun in a state of perfect preservation.

The Egyptian and Mediterranean Section has secured a sepulchral series of Egyptian antiquities of great historic interest, among which is a fine double coffin containing the mummy of a high priest of the XXI Dynasty. An historic and industrial series of Egyptian objects from the earliest dynasties down to the Ptolemaic times is also of the highest importance. The XIX Dynasty is represented by a quartzite statue of Rameses II. of heroic dimensions. Large sculptured blocks of syenite from the festival hall of King Osorkon II., XXII Dynasty, B. C. 900, are also shown; and in the reading-room is a fine column with palm-leaf capital, from the temple of Har Shefi at Herakleopolis.

From the Egypt Exploration Fund, the American Exploration Society and the Egyptian Research account, the committee in charge

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each year receives a fair share of the objects discovered. From Koptos important historic fragments of the XI Dynasty have thus been secured. An extensive collection of objects from Ballas and Nagada has also been obtained for the Museum, including pottery and stone implements of remarkable workmanship.

The explorations conducted in 1896, although less startling in their character, yielded many objects, and some fine slabs or fragments covered with paintings and colored hieroglyphs from the neighborhood of the Ramesseum were added to the collections.

Last year the Museum was enriched by a fine seated Ka statue of an Egyptian nobleman called Nenkheftek, who lived under the V Dynasty, and whose tomb at Deshasheh was opened last winter. With it has come the skeleton of the original, two rough coffins with their occupants, and other valuable sepulchral deposits of the old Egyptian Empire. From Behnesa an interesting collection of objects of the Roman period was obtained. But the most important part of the acquisitions from this site is a portion of the rich find of Greek papyri there discovered, which will eventually come to the Museum.

The Mediterranean Collection comprises an important series from Cyprus and interesting Greek, Etruscan and Roman antiquities.

The excavation of some Etruscan tombs at Narce, Chiusi, Cervetrii, Vulci, Bizentium, Ascoli, Civita, Orvieto, Corneto and Tarentum, undertaken by this Section, resulted in a splendid series containing a number of unique specimens. In addition to this, the Coleman Collection, purchased last year, has helped to make it quite unparalleled on this continent. These collections are the gifts of the late Dr. Pepper, of Mrs. Hearst and of the Hon. John Wanamaker.

The extremely valuable collection of engraved gems and amulets, formerly deposited by Professor Maxwell Sommerville, has been presented by him to the Department to form the Section of Glyptics. It is among the most valuable possessions of the Museum, and is of remarkable interest.

For inspection of the Museums, or for the prosecution therein of special studies, application should be made to the Director, STEWART CULIN.

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UNIVERSITY ARCHÆOLOGICAL ASSOCIATION.

This Association was formed to co-operate with the Museums, which have been created practically by its efforts. It elects from its membership the Board of Managers of the Department of Archæology and Paleontology, with the exception of the ten appointed by the Board of Trustees; and its objects are to secure funds for explorations, and to promote interest in its special work by publications and lectures. Weekly lectures are delivered in the Museums on Wednesdays during the academic year, at which practical demonstrations are made by means of specimens from the collections. The annual membership fee is five (5.00) dollars, payable in January. Its funds are administered with strict reference to the purpose of the subscription. For admission to membership and other information, application should be made to the Secretary, MRS. CORNELIUS STEVENSON, 237 South Twenty-first street, Philadelphia.

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THE FLOWER ASTRONOMICAL OBSERVATORY.

CHARLES C. HARRISON, LL. D., PROVOST.

CHARLES L. DOOLITTLE, C. E., FLOWER Professor of Astronomy, and Director of the Observatory.

HENRY BROWN EVANS, M. E., } Instructors in Astronomy.
ERIC DOOLITTLE, C. E., }

The Astronomical Observatory is situated on the "Flower Farm," a gift to the University by the will of the late Reese Wall Flower, on the West Chester Pike, near Cobb's Creek, about two miles beyond the city limits. The Observatory buildings are three in number, viz.: the equatorial building, of brick; the meridian building of wood; and the residence of the Director; one wing of the latter containing the Astronomical library, the office and computing rooms. The principal instruments comprising the equipment are: an Equatorial of 18-inch aperture, with Spectroscope; a Meridian Circle and a Zenith Telescope, each of 4-inch aperture; and a 3-inch Universal Transit.

Graduate students in Practical Astronomy are instructed in the details of observatory practice, and participate in the regular work, which includes systematic observation of comets, small planets and double stars, investigation of variation of latitude, and spectroscopy.

There is a small working observatory situated on the University grounds in West Philadelphia, for the convenience of undergraduates taking the course in Practical Astronomy. This building is equipped with a Transit instrument, Zenith Telescope, a 4-inch Equatorial and a Sidereal Clock. The equatorial and clock were presented by Mr. Horace Howard Furness, Jr.

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PHYSICAL EDUCATION AND ATHLETICS.

DEPARTMENT OF PHYSICAL EDUCATION.

CASPAR W. MILLER, PH. D., M. D., *Director.*
MASON W. ZIMMERMAN, M. D., *Ophthalmologist.*
J. DUTTON STEELE, M. D., *Physician.*
JOSEPH H. NOBLE, *Instructor.*

The Department of Physical Education was established by the Trustees as an integral part of the University's organization, in order that the physical and hygienic interests of the students might be properly cared for along with their intellectual training.

The system of Physical Education consists in the personal supervision of each College student, who, immediately after entrance, undergoes a thorough examination as to his general health, strength and muscular conditions. The results of the examination are placed on record; and on a basis of the information obtained, the Director advises the student as to his particular needs in the line of bodily development, and prescribes the proper methods of exercise required to overcome his defects. The examination is repeated once every year.

Where any student of the University presents himself as a candidate for athletic contests, the greatest care is taken before he is permitted to begin the special training required; and only those who have shown themselves adapted naturally to exercise of that character are allowed to engage in competitive sports. No student is permitted to become a member of any University or class athletic team, unless he first passes a satisfactory physical examination.

Upon entrance, every student in the Freshman Class is required to report to Dr. M. W. Zimmerman, who makes a general examination as to the condition of the student's eyesight, and furnishes each individual with a report. If the examination proves the existence of abnormal conditions, the patient is referred to his family physician for further advice. At any subsequent time the student may apply for a similar gratuitous examination, and receive advice as to special treatment.

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Dr. J. Dutton Steele gives gratuitous medical treatment to students who may be sent to him after examination by the Director, or who may apply to him voluntarily. In the case of a student whose permanent home is in the city or vicinity, Dr. Steele reports the case to the family physician, and the question of treatment is arranged as may be agreeable to the latter. Should the student's condition require it, he will be sent to the Students' Ward in the University Hospital, and there, under the most favorable conditions, receive appropriate treatment. The only charge in such cases will be for board at moderate rates.

Mr. Noble is in daily attendance in the gymnasium, and gives practical instruction in gymnastics and the proper use of the gymnasium apparatus.

UNIVERSITY COMMITTEE ON ATHLETICS.

EDGAR F. SMITH, PH. D., Professor of Chemistry: *Chairman.*
(On the part of the College Faculty.)

HUGO A. RENNERT, PH. D., Professor of Romanic Languages and Literatures: *Secretary.*
(On the part of the Faculty of Philosophy.)

GEORGE S. PATTERSON, A. B., LL. B., Professor of Law.
(On the part of the Faculty of Law.)

J. WILLIAM WHITE, M. D., Professor of Clinical Surgery.
(On the part of the Faculty of Medicine.)

MATTHEW H. CRYER, M. D., D. D. S, Assistant Professor of Oral Surgery.
(On the part of the Faculty of Dentistry.)

HORATIO C WOOD, M. D., LL. D., Professor of Materia Medica.
(On the part of the Faculty of Veterinary Medicine.)

The ultimate control of the athletic sports of students is in the hands of the University Committee on Athletics, in co-operation with the Deans and Athletic Committees of the various faculties, and with the Board of Directors of the Athletic Association.

The University Committee on Athletics was created by action of the Trustees, and consists of the chairmen of the several committees on athletics in the College, the Philosophical, Law, Medical, Dental and Veterinary Schools; the representative of the College being the Chairman of the University Committee. This committee

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has been charged by the Trustees with the general supervision of the health of students, including an examination into the hygienic conditions of their lodgings; a supervision of the gymnasium, and the arrangement of suitable times and methods of exercise; the making, after conference with members of the Athletic Association and with the students, of regulations to govern athletic contests, both inter-class and inter-collegiate; the determination, through the reports of the Deans of the several faculties, of the eligibility (in point of scholarship as well as of physical condition) of students who may desire to serve on any athletic teams; and other kindred matters. The Dean of each faculty maintains his executive control over the students under his charge by his power to appoint his own faculty committee annually; and also by the fact that where any question arises as to a student's standing in class, absence from lectures or recitations, right to leave the city to play elsewhere, or like matter, the Dean alone can decide and grant the requisite permission.

THE ATHLETIC ASSOCIATION.

OFFICERS.

President:
H. LAUSSAT GEYELIN, '77 C.

Vice-President:
THOMAS REATH, '79 C.

Secretary:
HARRY C. THAYER, '92 C.

Treasurer:
CHARLES S. W. PACKARD, '80 C.
517 Chestnut Street, Philadelphia.

The Athletic Association of the University of Pennsylvania was incorporated in 1883. Any matriculate, graduate or undergraduate of the University is eligible to membership, upon the payment to the Treasurer of the Association of an annual fee of five (5.00) dollars.

It is the present province of the Association to superintend the athletic grounds; to provide suitable facilitjes for the housing and

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training of the various teams; to arrange for inter-class and intercollegiate contests, subject to the approval of the University Committee on Athletics; and, in general, to foster and promote athletic sports at the University of Pennsylvania. The Board of Directors of the Association, composed of ten graduates and five undergraduate members, exists as a co-operative committee to the Deans and Athletic Committees of the several faculties, and to the University Committee on Athletics; while, through the membership roll of the Association, the sentiment and support of all is centralized.

The old athletic grounds, at Thirty-seventh and Spruce streets, having been designated by the Trustees as a site for the extension of the dormitory system, the Association has been granted the use of the property bounded by South, Marston, Thirty-second and Thirty-fourth streets. These grounds are known as FRANKLIN FIELD. The improvement of the property has been partially accomplished by the laying out of a football and baseball field, and a quarter-mile cinder "track," and also by the erection of temporary grandstands. In addition, the completed plans for FRANKLIN FIELD call for the erection of a field house, containing a tank for the crews, and a hall for winter practice, dressing rooms, etc., in one corner of the grounds; and also grandstands properly situated for the accommodation of spectators at the various games; beside which, at one end of the grounds there will be tennis courts and a large practice field for the use of class and "scrub" teams. These plans will be pushed to completion so soon as the necessary funds are in hand.

The boat-house of the Athletic Association, situated on the Schuylkill River, above Fairmount dam, is used by those in training for the University crews.

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ELIGIBILITY CODE.

RULES DEFINING ELIGIBILITY TO REPRESENT THE UNIVERSITY OF PENNSYLVANIA IN PUBLIC ATHLETIC CONTESTS AND EXHIBITIONS.

Revised September 30, 1896.

ARTICLE I.

The rules included in this Code are, first, rules designed to regulate college athletics from the point of view of the University; second, rules designed to regulate college athletics from the point of view of the individual athlete; and, third, administrative rules. Rules of the first class seek to accomplish two distinct purposes: (1) to insure that none but those who are bona fide students of the University of Pennsylvania shall represent the University in athletic sport; (2) to prevent all who are not "college amateurs," although they are bona fide students, from representing the University. Rules of the second class seek to accomplish three distinct purposes: (1) to prevent all those who, though they are bona fide students and college amateurs, are, nevertheless, deficient in scholarship, from representing the University; (2) to prevent those who are eligible in other respects from continuing to participate in competitive athletics for an undue period of time; (3) to prevent those who, though eligible in other respects, are physically unfit to engage in competitive athletics, from representing the University. In determining the eligibility of a student, the tests contemplated by these rules, excepting the test of physical unfitness, shall be applied in the order named.

ARTICLE II.

RULES REGULATING ATHLETICS FROM THE POINT OF VIEW OF THE UNIVERSITY.

SECTION 1. No student shall be allowed to represent the University of Pennsylvania in any public athletic contest or exhibition, individually or as a member of any team, unless he is, and intends to be throughout the college year in which the contest or exhibition takes place, a bona fide member of the University, taking a full year's work. Such bona fide membership shall not be taken to have been established with respect to any contest or exhibition

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taking place during the first term of an academic year, unless the student whose eligibility is in question shall have included in the certificate hereinafter provided for a written statement over his own signature of his intention to take a full year's work. The University Athletic Committee may, in any case, require such certificate to be countersigned by the parent or guardian of the student.

SEC. 2. No student of the University who has ever played in an intercollegiate contest upon any team of any other college or university shall represent the University of Pennsylvania until he has resided one academic year at the University, and has attained in the annual examination, upon a full year's work, the standard of scholarship hereinafter provided for.

SEC. 3. No student in any department of the University who has not been subjected for entrance to that department to the entrance examination prescribed for admission to the Freshman Class of the College, or to its equivalent, shall be permitted to represent the University until he has resided one academic year at the University, and has attained in the annual examination, upon a full year's work, the standard of scholarship hereinafter provided for.

SEC. 4. No student shall be allowed to represent the University in a public athletic contest or exhibition, either individually or as a member of a team, who, either before or since entering the University, shall have engaged for money in athletic competition, whether for a stake or a money prize or share of the entrance fees or admission money, or who shall have taught or engaged in any athletic exercise or sport as a means of livelihood, or who shall at any time have received or taken part in any athletic sport or contest for any pecuniary gain or emolument whatever, direct or indirect.

(*a*) Nothing in this rule shall be taken to disqualify a student because of his receipt from the College organization, or from any purely amateur association of which he was at the time a member, the amount by which his ordinary expenses for the time being were necessarily increased by reason of his participation in athletics.

(*b*) This rule shall be so construed as to disqualify those who receive their living or other expenses, either permanently or for a limited time, from any collegiate or non-collegiate organization or association; with the single exception that a student may receive from a collegiate or other purely amateur organization or association the amount of his traveling and hotel expenses, during his absence from the place

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of his residence for the time being for the purpose of a specified contest or exhibition, or a series of specified contests or exhibitions.

(*c*) The disqualification worked by this rule in the case of those students who received nothing but expenses from so-called "summer nines" prior to January 1, 1896, shall be held to be operative for the season of 1896 only, and shall not be construed to apply to students who do not infringe the rule subsequently to January 1, 1896.

(*d*) The disqualification worked by this rule in the case of students who receive expenses, or a remission in whole or in part of entrance fees or dues, from non-collegiate athletic clubs, shall be held to apply only to such infractions of the rule as occur subsequent to January 1, 1896.

(*e*) Saving as above provided in paragraph (*c*), disqualification for infringements of this rule shall be a permanent disqualification.

ARTICLE III.

RULES REGULATING ATHLETICS FROM THE POINT OF VIEW OF THE INDIVIDUAL ATHLETE.*

SECTION 1. No student shall represent the University of Pennsylvania in any public athletic contest or exhibition, unless at the time of such contest or exhibition he shall be in good standing in the class of which he is a member.

SEC. 2. No student shall be deemed to be in good standing within the meaning of Section 1:

(*a*) If he shall have been dropped from his class into a lower class or from a first-year class out of the University. Such student must complete a calendar year's work and pass examinations satisfactorily therein before he shall be deemed to be in good standing, unless he shall in the meantime have been permitted by the Faculty of his Department to regain his class.

(*b*) If he shall be conditioned in more than one subject at the time of the contest or exhibition in which he may desire to take part.

(*c*) If he shall have passed from one Department to another (1) without obtaining from the Dean of the Department

* Sections 2, 3 and 4 were formulated by the Board of Deans, July 30, 1896.

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which he has left a certificate to the effect that he has completed the work of the year and has no conditions; or (2) without having passed for admission to the Department which he has entered, examinations equivalent to those demanded for admission to the College; or (3) without obtaining from the Dean of the Department which he has left a certificate to the effect that his standing has been such as to leave no doubt that the spirit of (1) and (2) has been observed.

SEC. 3. No student who shall not be in good standing under the provisions of Section 2 shall take part in any team practice in preparation for the contests or exhibition mentioned in Section 1.

SEC. 4. In view of the fact that the boat races are rowed in the vacation, just after the close of the academic year, the following special provisions have been made for determining the scholastic standing of the candidates for the crew:

The list of the candidates for the crew shall be sent by the Chairman of the University Athletic Committee to the Deans of the several Departments on or before March 15. Preliminary examinations shall then be provided by the Deans, and reports as to the results of these examinations shall be sent to the Chairman of the University Athletic Committee on or before May 1.

The candidate who shall pass these preliminary examinations with not more than one condition shall be regarded as eligible to take part in the race.

The candidate who shall pass these preliminary examinations with not more than two conditions shall be allowed to present himself at the usual examinations of his Department at the close of the academic year. If he, at that time, passes with not more than one condition, he shall be permitted to take part in the race.

Any candidate failing in more than two subjects in the preliminary examinations shall be debarred from taking part in the race, whatever may be the results of the examinations at the close of the academic year.

The status of any candidate who does not avail himself of these preliminary examinations shall be determined by the provisions of Section 2 of this Article.

SEC. 5. No student shall be permitted to represent the University in more than one branch of sport in a single academic year, unless he obtains permission so to do from the University Athletic Committee.

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SEC. 6. No student shall represent the University of Pennsylvania in any public athletic contest or exhibition in any one branch of sport, either individually or as a member of a team, for more than four years. In reckoning the four years, the year of probation mentioned in Section 4 (*c*) shall be excluded, also any year lost to a student by illness or by his failure from any cause to gain a place on a University team.

ARTICLE IV.

ADMINISTRATIVE RULES.

SECTION 1. The election of captains of University teams and crews shall be subject to the ratification of the University Athletic Committee, upon the receipt of a report of favorable action upon the part of the Board of Directors of the Athletic Association.

SEC. 2. Each captain of a University team or crew shall be entitled, in advance of the beginning of his season, to submit for immediate action on the part of the University Athletic Committee, and, not later than the beginning of his season, shall be required to submit to the University Athletic Committee, a list of the candidates for his team or crew, whose eligibility to compete in the branch of sport in question shall thereupon be determined by the Committee.

SEC. 3. No student shall be deemed to be eligible within the meaning of this Code until he shall have signed and filed with the Secretary of the University Athletic Committee a certificate to the facts upon which his eligibility as a college amateur depends, and of his intention to remain a student for the full academic year, where such a certificate is required in conformity with Article II, Section 1.

SEC. 4. No University team shall engage in any public athletic contest on any other than a college ground, or with any non-collegiate team or crew, unless the consent of the University Athletic Committee has been first obtained.

SEC. 5. No team or crew shall conclude arrangements for leaving the city in preparation for any contest until due notice has been given to the Chairman of the University Athletic Committee, in order that he may satisfy himself that leave of absence, where leave is necessary, has been duly granted by the proper authority to the members of the team or crew.

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REGULATION OF NON-ATHLETIC ORGANIZATIONS.

UNIVERSITY COMMITTEE.

HENRY W. SPANGLER, M. S., WHITNEY Professor of Dynamical Engineering: *Chairman.*
(On the part of the College Faculty.)

EDWARD P. CHEYNEY, A. M., Professor of European History.
(On the part of the Faculty of Philosophy.)

REYNOLDS D. BROWN, A. B., LL. B., Professor of Law: *Secretary.* 328 Chestnut street.
(On the part of the Faculty of Law.)

EDMUND W. HOLMES, A. B., M. D., Demonstrator of Anatomy.
(On the part of the Faculty of Medicine.)

JAMES TRUMAN, D. D. S., Professor of Dental Pathology, Therapeutics and Materia Medica.
(On behalf of the Faculty of Dentistry.)

JOHN W. ADAMS, A. B., V. M. D., Professor of Veterinary Surgery and Obstetrics.
(On the part of the Faculty of Veterinary Medicine.)

1. Students desiring to establish newspapers, magazines, dramatic and musical societies, and other organizations that may bring them in relation with the public, shall submit a draft of their proposed undertaking to the Committee on Non-Athletic Organizations, together with a list of the men interested therein. If the proposed organization be approved by the Committee, a certificate of approval will be given to the promoters of the project. Without a certificate, no such organizations shall in the future be formed by the students.

2. All organizations referred to in Section 1, whether old or new, shall submit to the Committee within thirty days from the commencement of each college year, a list of their officers, with their respective city residences, and shall report to the Committee all changes that may occur during the year.

3. All students taking part in such organizations as are referred to in Section 1 must be in good standing. No student shall be deemed to be in good standing within the meaning of this Rule:

(*a*) If he shall have been dropped from his class into a lower class or from a first-year class out of the University. Such student

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must complete a calendar year's work and pass examinations satisfactorily therein before he shall be deemed to be in good standing, unless he shall in the meantime have been permitted by the Faculty of his Department to regain his class

(*b*) If he shall be conditioned in more than one subject.

(*c*) If he shall have passed from one Department to another (*a*) without obtaining from the Dean of the Department which he has left a certificate to the effect that he has completed the work of the year and has no conditions; or (*b*) without having passed for admission to the Department which he has entered, examinations equivalent to those demanded for admission to the College; or (*c*) without obtaining from the Dean of the Department which he has left a certificate to the effect that his standing has been such as to leave no doubt that the spirit of (*a*) and (*b*) has been observed.

4. Managing officers of such organizations must submit the names of candidates for their organizations to the Chairman of the Committee, and must receive the approval of the Committee before enrolling such candidates as members.

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HOWARD HOUSTON HALL.

BOARD OF DIRECTORS.

CHARLES C. HARRISON, LL. D., PROVOST.

and the

DEANS OF THE SEVERAL FACULTIES.

A. PEARSON CLIME, *Custodian.*

HOUSTON HALL, a club-house for the use of the students of the University of Pennsylvania, was formally dedicated to its uses on the evening of Thursday, January 2, 1896. This building, within the walls of which centres the daily social life of the students, was erected largely through the generosity of the late H. H. Houston, a Trustee of this University, and his wife, as a memorial to their eldest son, Henry Howard Houston, Jr., a member of the Class of 1878. The corner-stone was laid on December 22, 1894.

The situation of HOUSTON HALL, in almost the exact geographical centre of the University's great group of buildings, embodies to a large extent the idea of its existence as a centralization of the University's undergraduate interests. Its purposes, briefly stated, are to provide for the students of the various departments a place where all may meet on common ground, and to furnish them with every available facility for passing their leisure hours in healthy recreation and amusement. The equipment of the Hall includes a reading room, with a large number of periodicals and newspapers; smoking rooms, billiard and pool tables, tables for chess and checkers, a correspondence room, bowling alleys, shuffle boards, a bath room, including shower and needle baths, and a swimming pool; athletic trophy rooms; a large auditorium with grand organ; rooms for the university papers and other organizations; a dark room for amateur photographers, and many other rooms for general purposes.

The hall is the home of the Houston Club, to membership in which any student or officer of instruction is eligible. The cost of membership is Two (2.00) Dollars per annum.

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THE CHRISTIAN ASSOCIATION.

The voluntary religious activity of the University centres in this organization, which is a member of the Intercollegiate Y. M. C. A. The work consists in maintaining weekly religious meetings, at which prominent and popular speakers from Philadelphia, New York, Boston and other cities, as well as those visiting this country, address the students. Courses in the study of the Bible and prayer meetings are organized in each class. The Association also maintains and directs a Mission and Club on South street.

The rooms of the Association are in Houston Hall, where the General Secretary has his office. Any student in the University may, upon application, become a member of this organization.

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UNIVERSITY DORMITORIES.

The dormitory buildings form a large block surrounding two open courts. Copies of plans of the dormitories, indicating the general dimensions of the rooms, as well as other printed information, may be obtained upon application to the Registrar, Room 103, College Hall.

As may be seen by reference to the plans, about one-half of the rooms are *en suite*, providing for two students a common study, with two bedrooms. Most of the remaining rooms are for a single occupant. All rooms and halls are heated by steam and lighted by electricity. The buildings are on the "separate staircase" system, all doors opening into the courts. On each floor and on every staircase are lavatories, with hot and cold shower baths, etc. Almost all the double, and many of the single rooms, have open fireplaces. The University supplies for each student the following furniture: bedstead, mattress, bureau, washstand, table, bookcase, chairs and toilet china.

Dormitory rentals are payable in advance in two equal instalments, due October 1 and February 1, respectively. If the first part be not paid until on or after November 1, two dollars and a half (2.50) will be added; and an equal amount will be added to the second part also, if the amount be not paid until on or after March 1. No bills are sent for dormitory rents. Tenants are expected, without special notice, to make payment at the Registrar's office when rents become due.

Present occupants of rooms, who intend to be matriculated as students in some department of the University during the academic year 1899-1900, may engage their rooms for that year by signing new room agreements. These must be left with the Registrar not later than April 1, 1899.

Other rooms for 1899-1900 will be assigned by lot. A list of the rooms to be assigned will be ready for distribution on April 8, 1899. Applications from students in the College and the Department of Philosophy should be filed with the Registrar not later than 4 o'clock P. M. on April 23, 1899; and applications from students of other departments not later than 4 o'clock P. M. on May 6. Assignments to students in the College and the Department of Philosophy will be announced on April 29, and to students of other departments

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on May 12. Leases must be signed within one week of the day when assignments are announced. As far as possible, length of previous attendance at the University will be considered in making the allotments.

A limited number of rooms will be held until after the June (1899) examinations, for students entering the Freshman class in the College. Applications for these rooms, on the regular forms provided for that purpose upon request, and accompanied by the required bonds, must be received at the Registrar's office, College Hall, by June 1, 1899. Notice of the assignments of these rooms will be given to the successful applicants not later than July 1. Students intending to enter any department other than the College, may obtain a list of vacant rooms upon application to the Registrar after June 1, 1899. Any assignment to a student not yet matriculated is contingent upon the signing of the lease and completing matriculation by October 5, 1899.

In the assignment of a "double room" (marked for two students on the plans), preference will be given to an application signed by two students who will use the room together. Two students wishing to apply for a room together should both sign an application for the room; such an application will be given two chances in the allotment, and any room drawn will be assigned to both the applicants. The University, however, reserves the right to cancel any assignment of a room if it is not duly claimed and occupied throughout the year by the student or students signing the application. Suspension or expulsion from the University, or serious infringement of the rules, will be considered sufficient ground for the cancellation by the University of any lease. Sub-letting or exchange of rooms is not permitted.

If one of two room-mates is expelled or suspended, or so infringes University rules as to make his removal from the dormitories necessary, the other room-mate may have the room assigned to him by immediately signing a new application; provided that there are not two other students applying together for the room. Or he may hold the room by taking another room-mate, who must be qualified by filing an application and bond.

Every student wishing to occupy a University room must file with his application a bond for $125.00. When one student wishes to occupy a double room, he must file a bond for $225.00. When two students wish to occupy a room together, each must file a bond. The bond must be signed by two responsible persons, of whom one must be a citizen of the United States. No student or

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officer of the University will be accepted as bondsman. Or, instead of filing a bond, the student may pay in advance the full year's rent of the room, and make a deposit of ten dollars to cover possible damage, any balance remaining to be returned when the room is finally given up. Each tenant will be held for the full year's rent and charges against the room. But when the room is vacated before the end of the college year, the bondsmen shall not be held responsible for the rent of the room for the rest of the year if the room is rented to another tenant.

Only members of the University may occupy University rooms. Rentals include heat, light, and all reasonable care of rooms. Additional service must be paid for as an extra, and must, in all cases, be performed by persons authorized by the University.

The Parietal Committee, appointed by the Trustees to have charge of the discipline of the dormitories, consists of the three Proctors, resident in the dormitories, and one other person, appointed by the Provost. The students in each house of the dormitories elect one of their number as a Representative, and these Representatives form a Board which meets regularly and acts with the Parietal Committee in matters concerning the order and comfort of those in the houses.

DINING HALL.

A Dining Hall, situated on a plot of ground adjacent to the dormitories, furnishes good table board at $3.50 per week. This price includes service.

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LISTS OF STUDENTS.*

THE COLLEGE.

The College Courses are indicated as follows:—*Arts and Science, A.; Finance and Economy, Wh.; Biology, B.; Science and Technology (Lower Years), Sc.; Upper Years, Pure and Applied Chemistry, Sc. 1; Civil Engineering, Sc. 2; Mechanical Engineering, Sc. 3; Four-Year Technical Courses, Chemistry, Ch.; Chemical Engineering, Ch. E.; Civil Engineering, C. E.; Mechanical Engineering, M. E.; Electrical Engineering, E. E.; Architecture, Arch.; Interior Decoration, I. Dec.; Music, M.*

POST-SENIORS.

Name.	Course.	Residence.	City Address.
Pemberton, Ralph,	Sc. 1,	Philadelphia,	1947 Locust St.
Williams, Jacob Paul Jones,	Sc. 2,	do.	3208 Baring St.

SENIORS.

Arrison, William Ernst,	Wh.,	Philadelphia,	1723 Arch St.
Bacon, George William,	A.,	Swarthmore.	
Baker, Percival Stevens,	Sc. 2,	Philadelphia,	221 Winona Ave., Gtn.
Baker, Samuel Houston,	Arch.,	Wilmington, Del.,	409 S. 40th St.
Bean, Theodore Lane,	A.,	Conshohocken.	
Biddle, William Canby, Jr.,	M. E.,	Philadelphia,	4804 Chester Ave.
Blair, Walter Dabney, M. A. (Virginia),	Arch.,	Richmond, Va.,	3533 Locust St.
Bodine, Frank Lee,	Arch.,	Bridgeton, N. J.,	Dorm. 247, N.
Boice, James Morton,	A.,	Philadelphia,	2213 Spg. Garden St.
Bond, Frederick Drew,	A.,	do.	413 S. 44th St,
Bosler, Charles William,	C. E.,	Ogontz.	
Bossert, Frank Goess,	A.,	Philadelphia,	1309 N. 6th St.
Brown, John Rowland,	E. E.,	do.	1731 N. 16th St.
Brown, William Rawle,	A.,	Torresdale,	Dorm. 108, B.
Cantlin, Albert Harris Smith,	E. E.,	Philadelphia,	3202 Mantua Ave.
Clark, Frederick Lewis,	A.,	Conshohocken.	
Clarke, Charles Heath,	Ch.,	Philadelphia,	1726 N. 25th St.
Clevenger, Charles Henry,	Arch.,	do.	2008 Arch St.
Dailey, James Glanding,	Ch.,	do.	327 Wharton St.
Day, Charles,	E. E.,	do.	Clapier St., Gtn.
Dix, Leon,	A.,	Millville, N. J.,	Dorm. 379, M.
Donaldson, Thomas Blaine,	Wh.,	Philadelphia,	326 N. 39th St.
Downer, Samuel Whitney,	A.,	Downer, N. J.	
Eckman, Joseph,	A.,	Pulaski, Va.,	[Wyncote, Pa.]
Elliot, Edwin,	E. E.,	Philadelphia,	1743 N. 15th St.
Fernberger, Harry Mortimer,	Ch.,	do.	1939 N. 12th St.
Fleming, David, Jr.,	Wh.,	do.	Chestnut Hill.
Foster, Arnott Richardson,	Ch.,	do.	2115 Howard St.
Fox, Harry,	B.,	do.	5603 Germantown Av.
Francine, Horace Hugh,	A.,	do.	1404 Spruce St.

*NOTE.—Where no State is given after residence, *sc.* Pennsylvania.

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Name.	Course.	Residence.	City Address.
Frankland, John Corwell,	A.,	Philadelphia,	1507 Christian St.
Gendell, David Smith, Jr.,	C. E.,	do.	402 N. 40th St.
Gilpin, Charles, 3d,	Arch.,	do.	2004 De Lancey Pl.
Goddard, Amos,	A.,	do.	2451 Fairhill St.
Grover, William Sherwood,	Ch. E.,	do.	830 Windsor Sq.
Hagy, James Lawrence,	E. E.,	do.	1719 Willington St.
Hale, Arthur Esler,	Ch.,	do.	3855 Aspen St.
Hall, John Herbert,	Arch.,	Huntingdon,	3414 Sansom St.
Harrison, Charles Custis, Jr.,	A.,	Philadelphia,	Dorm. 203, A.
Hartwell, Stephen Warren,	Ch.,	do.	119 W. Walnut Lane, Gtn.
Hemphill, Elijah Dallet, Jr.,	A.,	West Chester,	Dorm. 127, G.
Hilborn, David Sydney,	E. E.,	Philadelphia,	2146 N. 12th St.
Hill, Howard Kennedy,	A.,	do.	1916 Spruce St.
Hipple, Frank Wharton,	Wh.,	do.	2020 Locust St.
Houck, Henry Croft,	E. E.,	Memphis, Tenn.,	Dorm. 133, I.
Huch, Karl Herman,	E. E.,	Philadelphia,	1218 Franklin St.
Humphreys, Warren Palmer,	A.,	Bryn Mawr.	
*Hutchinson, Charles Ingersoll,	Sc., 3,	Philadelphia.	
Jacobs, Henry Downing,	A.,	do.	7301 Germantown Av.
James, John Edwin, Jr.,	A.,	do.	1521 Arch St.
Jones, Henry Walter,	A.,	Chester.	
Jones, Samuel Reynolds,	C. E.,	Phœnixville.	
Jones, William Rush,	E. E.,	Philadelphia,	1902 Wallace St.
Kendall, Clement M.,	C. E.,	Reading,	Dorm. 448, M.
Kennedy, Matthew George,	Sc., 2,	Philadelphia,	626 S. 19th St.
Kerr, William Campbell,	E. E.,	do.	1534 N. 7th St.
Koch, Louis Henry,	Arch.,	do.	408 Fairmount Ave.
Lee, Wallace Rodgers,	Sc., 3,	do.	634 N. 6th St.
Levi, Gershon Benedict,	A.,	do.	603 Annin St.
Lober, William Diehl,	M. E.,	Ardmore.	
Loeb, Milton David,	Wh.,	Philadelphia,	957 N. 8th St.
Longwell, William David,	A.,	do.	4445 Chestnut St.
Lord, George Allen,	E. E.,	do.	2015 N. Gratz St.
Lucas, Robert James,	Sc. 1,	Spring Lake, N.J.,	3923 Pine St.
McClellan, William Hildrup,	A.,	Philadelphia,	1625 Locust St.
McIlvaine, Charles Lee,	Sc. 3,	Wilmington, Del.,	Dorm. 244, M.
McMichael, Paul Stanley,	Ch.,	Philadelphia,	832 N. 21st St.
Magee, Forrest Nolan,	A.,	do.	3624 Hamilton St.
Mechling, Edward Anthony,	Wh.,	do.	221 De Kalb Square.
Mingle, Harry Bowers,	Wh.,	New York, N. Y.	Dorm. 237, J.
Miller, Sarah Pleis,	B.,	Philadelphia,	2009 N. 7th St.
Mitchell, Charles Thomas,	A.,	do.	1505 Spruce St.
Morgan, Samuel Rowland,	Arch.,	do.	157 W. Chelten Ave., Germantown.
Morice, William Nelson,	Wh.,	Overbrook,	221 De Kalb Square.
Neilson, Winthrop Cunningham,	A.,	Philadelphia,	3711 Chestnut St.
Nelson, Henry John,	Wh.,	do.	1505 Pine St.
Parish, Benjamin Dores,	A.,	do.	1435 Spruce St.

* Deceased.

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Name.	Course.	Residence.	City Address.
Parry, William Haines,	Wh.,	Hainesport, N. J.,	628 N. 32d St.
Patterson, Wistar Evans,	M. E.,	Port Kennedy.	
Paul, Oglesby,	A.,	Villa Nova.	
Peirce, Thomas May, Jr.,	A.,	Philadelphia,	1616 N. Broad St.
Pilling, Robert, Jr.,	A.,	do.	4628 Leiper St., Fkd.
Pugh, Alexander Le Fevre,	Wh.,	Elizabeth, N. J.,	Dorm. 130, H.
Ramsey, Wm. Heines Crawford,	E. E.,	Bryn Mawr.	
Reynolds, Herman White,	E. E.,	Philadelphia,	3338 Walnut St.
Ruegenberg, John Maximilian,	Sc. 1,	do.	2621 Girard Ave.
Ruhe, Wallace Edgar,	Arch.,	Allentown,	Dorm. 134, I.
Rumford, Samuel Canby,	A.,	Wilmington, Del.,	Dorm. 244, M.
Sargent, Annie Bell,	B.,	Bellwood, Blair Co.,	3350 Walnut St.
Sautter, Albert Carl,	A.,	Philadelphia,	1419 Locust St.
Sheetz, George Christian,	Wh.,	do.	1553 Palmer St.
Shengle, John Clarence,	Ch.,	do.	263 N. 12th St.
Siegel, Paul Raymond,	Arch.,	Reading,	Dorm. 430, G.
Singer, Walter Tresse,	A.,	Philadelphia,	4662 Penn St., Fkd.
Smith, Amelia Catherine,	B.,	do.	1416 N. Bouvier St.
Speck, Harry Flowers,	E. E.,	do.	837 N. 27th St.
Spencer, Arthur Ringgold,	A.,	do.	1507 Spruce St.
Stahlnecker, Henry Wilson,	A.,	Norristown,	[622 Swede St.]
Stern, Horace,	A.,	Philadelphia,	907 N. 8th St.
Stewart, Ralph Chambers,	A.,	do.	1031 Spruce St.
Stitzer, Arthur Bowers.	E. E.,	do.	1909 N. Camac St.
Taylor, William Purves,	Sc., 2,	do.	204 S. 43d St.
Thomas, Walter Horstmann,	Arch.,	do.	1715 Spruce St.
Truitt, Robinson Marshall,	M. E.,	do.	824 S. 48th St.
Tunnell, Raymond Welch,	Ch.,	do.	266 Tulpehocken St., Germantown.
Van der Wielen, Adolph Brown,	A.,	do.	3339 Walnut St.
Van Kirk, Walter Moseley,	A.,	do.	1333 Pine St.
Walker, Roscoe Longstreth,	Arch.,	do.	649 N. 40th St.
Warner, Jacob Latch,	C. E.,	Haverford.	
Weede, Fred Lewis,	Wh.,	Sterling, Kas.,	3423 Walnut St.
Wesley, Charles Sumner,	Wh.,	Philadelphia,	2012 Wallace St.
Williamson, George Washington, 3d,	M. E.,	do.	1507 Venango St.
Wise, Milton Bigler,	A.,	Philadelphia,	2111 Marvine St.
Workman, Robert Aitken,	Sc., 3,	do.	1922 Dauphin St.
Wright, John William,	E. E.,	do.	3212 Arlington St.

JUNIORS.

Baer, Benjamin Franklin, Jr.,	B.,	Philadelphia,	2010 Chestnut St.
Baker, Chalice Whitmore,	M. E.,	Waynesboro,	206 S. 36th St.
Balentine, Harold Roscoe,	B.,	Philadelphia,	2140 N. 28th St.
Boewig, Harriet,	B.,	do.	2337 Bolton St.
Brendlinger, William Brown,	M. E.,	do.	810 N. 41st St.
Brown, Theodore Edmondson,	Sc., 3,	do.	Dorm. 105, B.
Bush, David Donaldson,	A.,	Wilmington, Del.,	3537 Locust St.
Coffman, Herbert,	Ch.,	Philadelphia,	2006 N. Camac St.

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Name.	Course.	Residence.	City Address.
Conway, John Sebastian,	C. E.,	Philadelphia,	4027 Poplar St.
Corbin, Elbert Augustus, Jr.,	Arch.,	do.	"The Bartram."
Craven, Henry Thornton,	Wh.,	do.	2106 Green St.
Cregar, Ninian Caldwell,	Wh.,	do.	6626 Green St., Gtn.
Cullen, William James,	Sc., 3,	do.	3611 Fairmount Ave.
Davis, Edward Ziegler,	A.,	do.	3319 Spg. Garden St.
Easton, William Hastings,	Sc., 1,	do.	224 S. 43d St.
Ehlers, Henry Edward,	M. E.,	do.	331 Reed St.
Evans, Owen Brooke,	M. E.,	do.	1706 Spg. Garden St.
Faber, Walter Theodore,	Ch.,	Ridley Park.	3217 Woodland Ave.
Fager, John Henry,	A.,	Harrisburg,	Dorm. 211, C.
Fisher, Wallis Woodward,	Wh.,	Philadelphia,	4822 Regent St.
Fleisher, Walter Louis,	Sc., 3,	do.	2030 Green St.
Folz, Stanley,	A.,	do.	1625 Oxford St.
Fouse, Adam Irving,	Wh.,	do.	838 N. 41st St.
Frazier, Benjamin West, Jr.,	A.,	do.	Dorm. 243, L.
Frescoln, Leonard Davis,	A.,	do.	6935 Paschall Ave.
Friend, George Clausen,	Ch.	do.	1210 S. 5th St.
Gardner, Blanche,	B.,	do.	2042 N. 12th St.
Gaw, Allison,	A.,	do.	3732 Sansom St.
Gillinder, James, Jr.,	Ch.,	do.	1509 Oxford St.
Gomborow, Joel,	E. E.,	do.	515 Bainbridge St.
Grant, Alexander,	A.,	St. Mary's, Ont., Can.,	110 S. 33d St.
Grayson, William Charles,	Wh.,	Philadelphia,	2413 Oxford St.
Greene, Frank Awl,	Wh.,	do.	145 Carpenter St., Gtn.
Hager, Albert Bertram,	C. E.,	do.	Haverford & City Avs.
Hahn, Frank Eugene,	C. E.,	do.	1806 Franklin St.
Henry, Allan Johnstone,	A.,	do.	1635 Locust St.
Hill, John Edwin,	A.,	Hazleton,	3825 Kensington Ave.
Hiltebeitel, Adam Paul,	Arch.,	Reading,	115 S. 34th St.
Hornor, Robert,	Wh.,	Philadelphia,	1324 N. Broad St.
Hume, Arthur Pringle,	M. E.,	Swarthmore.	
Hunter, William Henry,	A.,	Camden, N. J.,	[220 Vine St.]
Husik, Jacob,	A.,	Philadelphia,	327 Washington Ave.
Jones, Arthur Woodruff,	A.,	do.	Wissahickon Av., Gtn.
Karcher, Daniel Martin,	A.,	do.	1152 S. 6th St.
Kellam, Ralph Newton,	A.,	Haddonfield, N. J.	
Kennedy, Alexander Ralph,	A.,	Philadelphia,	1201 N. 11th St.
Kervey, Houghton Roberts, Jr.,	Sc., 3,	West Chester,	[213 W. Miner St.]
Kintzing, Lester,	Arch.,	Philadelphia,	260 S. 38th St.
Kirby, Harold Stilwell,	A.,	do.	707 Spruce St.
Knight, Joseph Mar,	Ch. E.,	Harrisburg,	Dorm. 425, E.
Kohn, Walter Abraham,	E. E.,	Philadelphia,	910 N. 6th St.
Layton, Daniel John, Jr.,	A.,	Georgetown, Del.,	Dorm. 105, B.
Liepsner, Harry Felt,	A.,	Philadelphia,	1143 Wharton St.
Liveright, Benjamin Kahn,	Wh.,	do.	910 N. Broad St.
McClellan, William,	A.,	do.	4213 Woodland Ave.
McKee, Frank Eugene,	M. E.,	do.	2229 Mt. Vernon St.
McKinney, William Ayer,	A.,	do.	1402 N. 16th St.
Magarge, Samuel John, Jr.,	M. E.,	do.	"The Pascoe," S. 13th St.
Magaziner, Louis,	Arch.,	do.	609 S. 2d St.

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Name.	Course.	Residence.	City Address.
Marshall, Stewart McCulloch,	M. E.,	Philadelphia,	2141 Van Pelt St.
Martin, Edward Lewis,	E. E.,	do.	4242 Salem St., Fkd.
Mearns, Joseph Lawrence,	E. E.,	do.	11 Maplewood Ave., Germantown.
Mendelsohn, Charles Jastrow,	A.,	Wilmington, N.C.,	139 W. Upsal St., Gtn.
Merzbacher, Aaron,	Ch.,	Reading,	115 S. 34th St.
Michener, Albert Oswald,	A.,	Philadelphia,	1701 Franklin St.
Morgan, Leonard Pearce,	Ch.,	do.	4714 Chester Ave.
Müller, Hermann,	A.,	do.	1144 N. 4th St.
Nelson, Harry Warren,	C. E.,	do.	1713 Howard St.
Nusbaum, Lee,	M. E.,	do.	1335 N. 7th St.
Patterson, Joseph Shewell,	A.,	do.	8104 St. Martin'sLane, Chestnut Hill.
Perkins, Edwin Alan,	M. E.,	do.	413 S. Broad St.
Potts, Frank Keith,	A.,	do.	6302 Morton St., Gtn.
Preston, William Procter,	Arch.,	do.	511 S. 9th St.
Rabinovitch, Joseph Jacob,	Sc., 2,	do.	429 South St.
Read, William Thackara,	A.,	Camden, N. J.,	[514 Cooper St.]
Reeder, Arthur Lowrie,	E. E.,	Philadelphia,	665 Union St.
Remington, William Procter,	A.,	do.	1832 Pine St.
Rice, Alfred Belden,	A.,	do.	710 N. 40th St.
Rich, Edward Burwell,	A.,	Burlington, N. J.	1822 Pine St.
Riddle, James Whitford, Jr.,	A.,	Philadelphia,	3318 Spg. Garden St.
Roberts, Joseph England, Jr.,	B.,	Camden, N. J.,	[401 Broadway.]
Roth, Frank Caspar,	B.,	Scranton,	3738 Locust St.
Sachs, Harry Bernard,	A.,	Philadelphia,	1130 N. 2d St.
Saul, Walter Biddle,	Wh.,	do.	1803 Van Pelt St.
Schenk, Albert Frederick,	Arch.,	do.	323 N. 11th St.
Seipt, Allen Anders,	A.,	Worcester,	Dorm. 364, I.
Somers, Albertus Beesley,	M. E.,	Milville, N. J.	
Stern, Julius,	Wh.,	Philadelphia,	1212 N. 7th St.
Sypherd, Wilbur Owen,	A.,	Wilmington, Del.,	[704 Adams St.]
Taylor, Granville Lewis,	C. E.,	Philadelphia,	1630 Brown St.
Temple, Worrall Elizabeth Sharpless,	E. E.,	Lionville,	Dorm. 416, C.
Terry, Arthur Linville,	E. E.,	Woodbury, N. J.	[63 Delaware St.]
Tryon, Harold Harrison,	A.,	Cynwyd.	
Turner, Herbert Spencer,	Ch.,	Philadelphia,	1558 N. 11th St.
Upson, Charles Ayrault,	A.,	Lockport, N.Y.,	Dorm. 110, C.
Warnick, Allen Rogers,	Arch.,	Philadelphia,	1720 Susquehanna Av.
Willing, James Edgar,	Arch.,	do.	1918 Spg. Garden St.
Wilson, Arthur Morton,	Sc., 3,	do.	909 Clinton St.
Withrow, James Renwick,	Ch.,	do.	4346 N. 7th St.
Witmer, John Steele, Jr.,	E. E.,	do.	1010 S. 47th St.
Yaskawa, Seizaburo,	Wh.,	Tokyo, Japan,	1641 N. Broad St.
Zimmermann, John Edward,	M. E.,	Buenos Ayres, Argentine Republic,	Dorm. 243, L.

SOPHOMORES.

Acker, John Henry Radey,	Wh.,	Philadelphia,	1208 N. 7th St.
Addleman, Samuel Woolf,	Sc.,	do.	608 Wilder St.

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Name.	Course.	Residence.	City Address.
Allis, Oswald Thompson,	A.,	Philadelphia,	1604 Spruce St.
Ambler, James Burnett,	E. E.,	do.	2934 N. 12th St.
Ambler, William Henry, Jr.,	E. E.,	do.	3431 N. 19th St.
Austin, Horace Philips,	A.,	do.	Oak Lane.
Ball, Joseph Norman,	Ch.,	Wayne.	
Barlow, De Witt Dukes,	C. E.,	Philadelphia,	1411 Morris St.
Beggs, Robert Alexander, Jr.,	A.,	do.	1723 N. 17th St.
Berst, William Lawson,	A.,	Erie,	Dorm 109, C.
Brand, Albert Christian,	Wh.,	Philadelphia,	2350 E. Dauphin St.
Brumm, George Franklin,	Wh.,	Minersville,	215 De Kalb Square.
Cadwalader, Thomas Francis,	A.,	Philadelphia,	1519 Locust St.
Capelle, George Sheetz, Jr.,	A.,	Wilmington, Del.,	Dorm. 239, K.
Carbutt, Robert Foster,	M. E.,	Philadelphia,	2107 Venango St.
Child, Stanley Gausler,	M. E.,	do.	4545 McKean Av., Gtn.
Climenson, Silas Griffith,	A.,	Haddonfield, N.J.,	[134 W. Main St.]
Coles, Lewis Edward,	Wh.,	Philadelphia,	1522 S. 4th St.
Colket, Meredith Bright,	Wh.,	do.	2037 Chestnut St.
Conrad, Herbert Lex,	Wh.,	do.	1701 Wallace St.
Cooke, Ethel,	B.,	do.	218 S. 44th St.
Craig, Faires Beaver,	A.,	Norristown.	
Cross, Harold Seymour,	A.,	Jenkintown.	
Crowther, Samuel, Jr.,	Sc.,	Philadelphia,	739 Gray's Ferry Road.
Curtis, Lucius Fisher,	A.,	West Stockbridge, Mass,	Dorm. 427, F.
Davis, Archibald MacAllister,	Wh.,	Philadelphia,	255 S. 16th St.
Davis, Lemuel Howell,	A.,	Riverton, N. J.,	Dorm. 217, D.
Deakin, Edward Wright,	C. E.,	Ogontz.	
De Dúeñas, Joaquin Andres,	C. E,	Havana, Cuba,	3637 Locust St.
Deeter, Aaron Leinbach,	A.,	Philadelphia,	2013 Hart Lane.
Dennison, Robert Evans, Jr.,	A.,	do.	Rector St., Roxbor'h.
Diefendorf, Harry Goodrich,	Wh.,	Erie,	Dorm. 210, C.
Dissel, Albert Buck,	Wh.,	Wynnewood,	Dorm. 140, L.
Donaldson, John Allan,	M. E.,	Harrisburg,	Dorm. 245, M.
Dowlin, Howard Husted,	A.	West Chester,	[405 S. Walnut St.]
Dredger, John Morris, Jr.,	A.,	Philadelphia,	1013 Fairmount Ave.
Dunlap, Eugene Edwin,	Ch.,	do.	2016 N. 11th St.
Earnshaw, Arthur Reginald,	A.,	Riverton, N. J.	
Eisenbrey, John Kenton,	Ch. E.,	Philadelphia,	1717 Locust St.
Evans, Frank Brooke, Jr.,	A.,	do.	1706 Spg. Garden St.
Evans, Herbert Spencer,	E. E.,	do.	3102 Mantua Ave.
Faires, James Dobbin,	C. E.,	do.	3 N. 20th St.
Feineman, Arthur Norman,	E. E.,	Kansas City, Mo.,	124 E. Upsal St., Gtn.
Ford, Albert Dudley,	Wh.	Philadelphia,	1704 Summer St.
Frescoln, Rees Jones,	A.,	do.	6935 Paschall Ave.
Fulweiler, Walter Herbert,	Ch.,	do.	4121 Girard Ave.
Gawthrop, Robert Smith,	A.,	Embreeville.	[West Chester, Pa.]
Gibbons, Henry Johns,	A.,	Philadelphia,	323 Pine St.
Gibbons, Herbert Adams,	A.,	do.	323 Pine St.
Gilpin, John Clayton,	A.,	do.	2004 De Lancey Place.
Goentner, William Beans,	M. E.,	Willow Grove.	
Goldsmith, Clarence Hexter,	Wh.,	Philadelphia,	2003 Park Ave.

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Name.	Course.	Residence.	City Address.
Gucker, Thomas, Jr.,	Wh.,	Philadelphia,	3422 Hamilton St.
Halstead, William Kensley,	M. E.,	do.	2119 Hunting Park Av.
Hancock, Edward David,	Ch.,	do.	926 N. 17th St.
Hare, Thomas Truxton,	A.,	do.	120 S. 22d St.
Harrison, Harry Waln,	A ,	do.	Dorm. 203, A.
Harter, Isaac, Jr.,	A.,	Mansfield, O.,	Dorm. 201, A.
Hederman, John O'Conner,	C. E.,	Hornellsville, N.Y.	15 N. 34th St.
Hayes, Eleanor Ethel,	B.,	Philadelphia,	3208 Race St.
Henwood, Abraham,	Ch. E.,	do.	4300 Market St.
Hirzel, Carl Henry,	A.,	do.	1800 N. 24th St.
Hoffsten, Ernest Godfrey,	A.,	do.	853 N. 5th St.
Hoover, William Mitchell,	C. E.,	do.	4018 Baring St.
Hurst, Joseph H.,	A.,	Wyalusing,	3423 Walnut St.
Jackson, Arthur Conard,	Arch.,	Philadelphia,	3117 N. 16th St.
Janney, William Canby,	E. E.,	do.	3412 Hamilton St.
Jaques, Jacob Duncan,	C. E.,	Woodbury, N. J.	
Karcher, Walter Thompson,	Arch.,	Philadelphia,	1152 S. 6th St.
Keller, Daniel Schenck, Jr.,	A.,	do.	1009 St. Bernard St.
Kelly, Gregory Cook,	M. E.,	do.	120 Cliveden St., Gtn.
Klahr, Charles Dean,	Wh.,	Clarion,	607 N. 6th St.
Langstroth, Francis Drexel,	Wh.,	Philadelphia,	4109 Walnut St.
Le Boutillier, Benjamin Homer,	A.,	do.	E. Washington Lane, Germantown.
Leiss, Levi Warren,	A., .	Reading,	Dorm. 353, G.
Leopold, Harry Simon,	Wh.,	Philadelphia,	1905 Park Ave.
Little, William Vogleson,	M. E.,	Glenside.	
Lüders, Lewis Bowyer,	Ch.,	Philadelphia,	206 S. 41st St.
McClain, Thaddeus Brew,	Wh.,	Ridgway,	3309 Walnut St.
McCoy, John Smith,	Wh.,	York,	Dorm. 147, N.
McCurdy, John Kirk,	A.,	Philadelphia,	205 N. 34th St.
Mc Dowell, Samson,	Wh.,	do.	2128 E. Sergeant St.
Mackay, Charles Smick, Jr.,	Ch.,	do.	4167 Leidy Ave.
Mallery, Garrick, Jr.,	A.,	do.	202 Highland Av., C.H.
Manz, Louis Christian,	Sc.,	do.	1500 Allegheny Ave.
Maris, John McIlvain, Jr.,	M. E.,	do.	Highland Ave., C. Hill.
Martin, Warren Frederick,	A.,	do.	1950 Judson Place.
Martindale, James Joseph,	E. E.,	do.	413 N. 33d St.
Mayhew, Wallace Nelson,	C. E.,	do.	Monument Cemetery.
Meigs, Curtis Clay,	M. E.,	Lebanon,	3939 Chestnut St.
Miller, Albert Herman,	M. E.,	Philadelphia,	2213 Thompson St.
Mills, Coleman Sellers,	Arch.,	do.	1909 Chestnut St.
Moody, Lewis Ferry,	Sc.,	do.	1909 Green St.
Moore, Harold Thompson,	M. E.,	Chester,	[726 W. 3d St.]
Moore, Stanley Bremer,	M. E.,	Philadelphia,	1931 Judson Place.
Oakley, Thornton,	Arch ,	Pittsburg,	2035 Walnut St.
O'Neill, William Paul,	A.,	Philadelphia,	2211 Tioga St.
Page, Charles Collins,	Arch.,	do.	132 S. 4th St.
Parvin, Albert William,	Wh.,	do.	3213 Powelton Ave.
Paxson, Clement Esmond,	E. E.,	Radnor.	
Pfeiffer, Charles George,	M. E.,	Philadelphia,	800 E. Girard Ave.
Quick, Charles Delevan,	Ch.,	do.	78 E. Penn St., Gtn.

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Name.	Course.	Residence.	City Address.
Rees, Arthur Dougherty,	Wh.,	Philadelphia,	4116 Baltimore Ave.
Robinson, Howard Needham,	Ch.,	Conshohocken.	
Rodenbaugh, Henry Nathan,	M. E.,	Norristown,	[501 George St.]
Rogers, Bertram Harper,	A.,	Philadelphia,	239 S. 41st St.
Rush, Louis Harold,	Arch.,	St. David's.	
Scully, Cornelius Decatur,	A.,	Pittsburgh,	Dorm. 204, A.
Shakespeare, Franklin Heverin,	E. E.,	Chester,	[508 W. 7th St.]
Sheppard, Walter Lee,	A.,	Philadelphia,	5443 Green St., Gtn.
Sladen, Charles Fischer,	A.,	do.	7105 Woodland Ave.
Smith, Alfred Morton,	A.,	Jenkintown.	
Smith, Livingston,	Arch.,	Rutledge.	
Smith, Thomas Duncan,	A.,	Philadelphia,	2029 Pine St.
Spare, Charles Roscoe,	Ch.,	do.	1842 N. 13th St.
Stem, Frank Brodie,	E. E.,	do.	330 N. 20th St.
Stevens, John Bergen,	A.,	Reading,	Dorm. 232, H.
Stevenson, Thomas Patton,	C. E.,	Wynnewood.	
Stratton, Clarence,	A.,	Philadelphia,	1648 Meadow St., Fkd.
Strickland, Charles Gunnison,	A.,	Erie,	Dorm. 109, C.
Stringfellow, Samuel Franklin,	Ch. E.,	Philadelphia,	1815 S. 4th St.
Strousse, Louis,	Wh.,	do.	939 N. 8th St.
Taylor, Hollinshead Nathan,	A.,	do.	St. Martin's Lane, Chestnut Hill.
Terry, Henry Warren, Jr.,	Ch. E.,	do.	2029 Mt. Vernon St.
Vogt, Wilfred Born,	A.,	Lafayette Hill,	Dorm. 454, O.
Wainwright, Clement Reeves, Jr.,	A.,	Philadelphia,	1627 Spruce St.
Warner, Arthur,	M. E.,	Haverford.	
Watson, Cassius Hinds,	B.,	Danbury, Conn.,	3408 Sansom St.
Weaver, Spencer Fullerton,	M. E.,	Philadelphia,	1835 Arch St.
Westermaier, Francis Victor,	E. E.,	do.	4123 Westminster Av.
Whelen, Thomas Duncan,	A.,	do.	1814 S. Rittenhouse Sq.
Wiborn, Gershom Vorse,	A.,	Rochester, N. Y.,	Dorm. 140, L.
Williams, Samuel Borton,	M. E.,	Philadelphia,	3208 Baring St.
Willis, Elias Root Beadle,	A.,	York,	3709 Woodland Ave.
Wilson, Clayton Cowgill,	Wh.,	Philadelphia,	3609 Baring St.
Wood, Charles Stewart,	A.,	do.	410 S. 15th St.
Wood, Matthias Wills,	Wh.	Middleburg, N.Y.,	3336 Walnut St.
Wunder, Clarence Thorn,	Sc.,	Philadelphia,	1514 Willington St.
Yarnall, David Robert,	M. E.,	Media,	[218 Lincoln Ave.]
	FRESHMEN.		
Abele, Julian Francis,	Arch.,	Philadelphia,	718 S. 21st St.
Allen, Samuel Austin,	Arch.,	Joplin, Mo.,	4039 Powelton Ave.
Arnold, Frank Dondore,	Wh.,	Reading,	3721 Spruce St.
Arrison, Howard Warner,	C. E.,	Philadelphia,	6325 Vine St.
Ashbrook, Donald Sinclair,	Ch.,	do.	3614 Baring St.
Atkinson, Margaretta,	B.,	do.	1240 N. 25th St.
Atlee, George Bullock,	A.,	do.	4105 Spruce St.
Bache, William Arthur,	Ch.,	do.	1912 N. 21st St.
Bain, Howard,	E. E.,	do.	2935 Richmond St.
Baker, George Linville,	A.,	do.	3209 Powelton Ave.
Barnes, John Sellers,	A.,	do.	214 N. 33d St.

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Name.	Course.	Residence.	City Address.
Barnitz, Frederic Bacon,	A.,	Des Moines, Iowa,	Dorm. 227 F.
Barrows, Richard Lee,	Arch.,	Philadelphia,	2312 Spruce St.
Bates, Phaon Hilborn,	Sc.,	do.	1704 Arch St.
Beckenbach, Arnold Jacob,	Wh.,	Palmyra, N. J.	
Beckett, Jabez Campbell,	A.,	Philadelphia,	1923 N. 11th St.
Blakely, Charles School,	E. E.,	do.	877 N. 21th St.
Boltz, John Clymer,	Wh.,	do.	Pelham Road, Gtn.
Boschen, Walter Luther,	Arch.,	New Haven, Conn.,	3419 Walnut St.
Bowen, Charles Henry, Jr.,	C. E.,	Philadelphia,	206 Carpenter St.
Briscoe, John Manvers,	Arch.,	Pottsville,	3707 Walnut St.
Brown, Edna Lenore,	B.,	Philadelphia,	4021 Spring Garden St.
Brown, William, Jr.,	Wh.,	Merion.	
Bunting, Arthur Levis,	M. E.,	Philadelphia,	4244 Chestnut St.
Buvinger, Charles Winfield,	A.,	do.	911 N. 16th St.
Campbell, John Moore,	B.,	do.	1248 S. 10th St.
Castner, Philip Aloysius,	Sc.,	do.	3729 Chestnut St.
Chapin, James Irving,	A.,	do.	1630 Diamond St.
Chorlton, William Harper,	C. E.,	do.	1820 Gillingham St., Frankford.
Cohen, Henry Barnet,	A.,	do.	334 S. 21st St.
Cooper, James Wallace, 2d,	Wh.,	do.	2043 Mt. Vernon St.
Craig, Elmer Elbert,	A.,	do.	1805 Franklin St.
Crawford, James Pyle Wickersham,	A.,	do.	1714 Mt. Vernon St.
Cregar, Samuel Henry, Jr.,	Wh.,	do.	6626 Greene St., Gtn.
Croasdale, Earl Fenner,	C. E.,	do.	1835 Van Pelt St.
Custard, Albert Adam,	Wh.,	do.	3207 Dauphin St.
Cuthbert, Herman Girvin,	A.,	do.	3944 Chestnut St.
Decker, Theodore Frank,	E. E.	do.	2816 Girard Ave.
Dedrick, Charles Henry,	Ch.,	do.	2416 Poplar St.
Dickson, Frank Craig,	A.,	do.	Oak Lane.
Dodson, Albert James,	A.,	do.	1917 Green St.
Duhring, Joseph Bryant,	C. E.,	do.	Chestnut Hill.
Dunn, Harvey Hopkins,	Arch.,	do.	3142 Diamond St.
du Pont, Alexis Felix,	A.,	Wilmington, Del.,	Dorm. 108, B.
Earnshaw, Boulton,	A.,	Riverton, N. J.	
Earnshaw, John Robert,	Wh.,	Philadelphia,	Oak Lane.
Eckfeldt, Frederick William,	Ch. E.,	Conshohocken.	
Emerson, Raffe,	M. E.,	Philadelphia,	416 W. Chelten Ave., Germantown.
Evans, Ralph Berrell,	A.,	do.	1706 Sp'g Garden St.
Fagley, Wilson,	C. E.	do.	3144 Diamond St.
Farquhar, Frederick George,	M. E.,	Pottsville,	Dorm. 310, A.
Figner, Franklin Weidener,	C. E.,	Philadelphia,	5442 Wayne Av., Gtn.
Francis, William Charles,	M. E.,	do.	1648 Vienna St.
Geisler, Mary Hibbs,	B.,	do.	703 Cumberland St.
Gilliams, Louis, Jr.,	Wh.,	Bryn Mawr.	
Good, Paul Eckert,	M. E.,	Riverton, N. J.	
Grabosky, Hyman,	A.,	Philadelphia,	602 S. 9th St.
Gracey, George Fay,	Ch.,	Belleville,	1607 Race St.
Graham, John Howard,	Ch.,	Philadelphia,	2108 Marshall St.

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Name.	Course.	Residence.	City Address.
Gray, Luther Albert,	A.,	Philadelphia,	723 Locust Ave., Gtn.
Grigg, Albert White, Jr.,	A.,	do.	1235 N. 13th St.
Hall, Evans Roberts,	M. E.,	Ridley Park.	
Hamilton, Hanse Harrison,	Wh.,	Philadelphia,	524 Tasker St.
Harris, Mary Estelle,	B.,	do.	Oak Lane.
Hart, Olive Ely,	B.,	do.	3342 Walnut St.
Herkness, Alfred Morris, 3d,	A.,	do.	1602 Wallace St.
Hinckle, Charles Frederick,	E. E.,	Ardmore.	
Hirsh, Leon Frank,	A.,	York,	Dorm. 240, K.
Hitchcock, Arthur Brainard, Jr.,	A.,	Philadelphia,	"The Gladstone."
Holland, Leicester Bodine,	A ,	do.	2005 Chestnut St.
Hollingsworth, Frank,	Arch.,	Scotch Plains, N.J.	3721 Spruce St.
Huggins, George Augustus,	A.,	Nevis, Leeward Is.,	3265 Woodland Ave.
Irwin, Paul Wellwood,	Arch.,	Bellevue,	3234 Chestnut St.
Jacobs, Adeline Hyneman,	B.,	Philadelphia.	1307 Marshall St.
Janney, Nelson Wilson,	B.,	do.	123 N. 20th St.
Jones, Edmund, Jr.,	Ch. E.,	Chester.	
Jordan, William, Jr.,	C. E.,	Philadelphia,	1642 S. Broad St.
Krautter, Louis, Jr.,	B.,	do.	1007 Lehigh Ave.
Lang, George Bryant,	Ch.,	do.	816 N. 20th St.
Laws, George Malcolm,	A.,	Paulsboro, N. J.	2110 Vine St.
Lindsay, James Gibson, Jr.,	Sc.,	Philadelphia,	205 W. Upsal St., Gtn.
Lochhead, James Struthers,	A.,	do.	2515 W. Thompson St.
Lodor, Clara Hahn,	B.,	do.	1313 N. 12th St.
Loewenstein, Jacob,	C. E.,	do.	805 N. 8th St.
Love, Benjamin George,	C. E.,	do.	1733 Vine St.
Mack, Joseph Lathrop,	Ch.,	St. Louis, Mo.,	3228 Sansom St.
Miller, Charles Henry,	E. E.,	Philadelphia,	2114 Hancock St.
Milton, William Ossian,	A.,	Franklin,	3919 Market St.
Montgomery, Thomas Scanlan,	Ch.,	Philadelphia,	39th and Baring Sts.
Moore, Ralph D.,	A.,	Herkimer, N. Y.	
Moorhead, Stirling Walker,	A.,	Philadelphia,	1523 Pine St.
Mulford, William Harley,	A.,	Wyncote,	508 Marshall St.
Nathan, Edward Isaac,	A.,	Philadelphia,	468 Franklin St.
Osborn, Sidney Jose,	A.,	do.	4812 Beaumont Ave.
Pabst, Harry,	E. E.,	do.	713 Lombard St.
Page, Robert Holmes,	Wh.,	do.	Allen's Lane, Gtn.
Parvin, Robert Sewell,	E. E.,	do.	1321 S. Broad St.
Peirce, Frederick,	Wh.,	do.	3323 Powelton Ave.
Pennypacker, Bevan Aubrey,	A.,	do.	1540 N. 15th St.
Pennypacker, Isaac Anderson,	A.,	Haddonfield, N. J.	
Pepper, Benjamin Franklin,	Wh.,	Philadelphia,	1811 Spruce St.
Peterzell, Morris,	M. E.,	do.	609 S. 4th St.
Picado, Ramon Maria,	M. E.,	Cartago, Costa Rica,	3321 Walnut St.
Piersol, George Morris,	A.,	Philadelphia,	4724 Chester Ave.
Plumb, Ralph Hodges,	A.,	Des Moines, Ia.	Dorm. 227, F.
Prime, Frederick, Jr.,	A.,	Philadelphia,	1008 Spruce St.
Rech, William Philip,	Wh.,	do.	1221 Franklin St.
Redfield, Snowden Bayard,	M. E.,	do.	206 S. 42d St.
Riebenack, William Beard,	Arch.,	do.	S. E. cor. 34th and Powelton Ave.

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Name.	Course.	Residence.	City Address.
Roberts, Jacob Clarence,	Ch. E.,	Philadelphia,	807 Corinthian Ave.
Rosenbaum, Clara,	B.,	do.	1554 N. 6th St.
Ross, Myron, Alcott,	Ch. E.,	do.	747 N. 44th St.
Rowland, Albert Gilroy,	A.,	do.	Fox Chase.
Royer, Clement Miller Studebaker,	E. E.,	Aston Mills.	
Rubel, Milton Louis,	Wh.,	Philadelphia,	1507 N. 10th St.
Ryan, Charles James,	A.,	Hewlett, Va.,	Dorm. 104, A.
Schaeffer, Edward Carroll,	A.,	Reading,	Dorm. 357, H.
Schwebel, William,	Wh.,	Philadelphia,	12th & Callowhill Sts.
Settle, George Meade	A.,	Leeds, Md.,	3721 Spruce St.
Sharpless, Charles Griffith Thomas,	Ch. E.,	Philadelphia,	1724 Franklin St.
Sinn, Clarence Wise,	E. E.,	do.	Wister St., bel. Thorp's Lane, Gtn.
Smith, Walter Gordon,	M. E.,	Overbrook,	
Smyth, Frank, Jr.,	A.,	Philadelphia,	Dorm. 403, A
Snook, George Alvin,	A.,	do.	2018 Franklin St.
Stewart, Donald MacCue,	M. E.,	Reading.	
Thomas, Samuel DeHaven,	Sc.,	Norristown,	[623 W. Main St.]
Thümmel, Warren Frederic, Jr.,	Arch.,	Philadelphia,	4154 Leidy Ave.
Travis, Charles,	C. E.,	do.	848 Union St.
Walnut, Thomas Henry Jr.,	A.,	Riverton, N. J.	
Waring, Orville Theodore,	C. E.,	Plainfield, N. J.,	3726 Baring St.
Weber, Herbert Seiser,	A.,	Philadelphia,	415 S. 10th St.
Wetterau, Carl,	Arch.,	Hazelton,	3721 Spruce St.
Wilson, Lewis Ghriskey,	Ch.,	Philadelphia,	4833 Woodland Ave.
Wolfort, Benjamin Edgar,	B.,	St. Louis, Mo.,	Dorm. 300, A.
Wood, Edward Cope,	A.,	Camden, N. J.,	[7th and Erie Sts.]
Woodward, Graham Cox,	Wh.,	Philadelphia,	67 High St., Gtn.
Woodward, Thomas Massey,	C. E.,	do.	1310 Chestnut St.
Yerkes, Leonard Augustus,	Ch.,	St. Davids.	
Yost, Donald Henry,	Sc.,	York,	109 S. 34th St.
Zinn, Maurice Collins,	A.,	Media,	[303 South Ave.]

STUDENTS IN THE TWO AND THREE YEAR SPECIAL COURSES.

STUDENTS OF THE THIRD YEAR.

Ambruster, Amelia,	M.,	Camden, N. J.,	[303 Benson St.]
Boericke, Helene,	M.,	Philadelphia,	6386 Drexel Road.
Evans, May,	M.,	do.	218 N. 32d St.
Goodman, Carlton Mathews,	Sc. 1,	do.	3309 Arch St.
Hall, Myers Frederick,	M.,	Fernwood,	26 S. 7th St.
Loeb, Oscar,	Wh.,	Philadelphia,	1508 Girard Ave.
Rodgers, William Garrett,	M.,	do.	1617 South St.
Smith, Uselma Clark, Jr.,	M.,	do.	1515 Green St.
Vansant, E. Lenore,	M.,	do.	1429 Dickinson St.
Van Tine, Helen Frances,	M.,	do.	1613 Girard Ave.
Weinstock, Isadore Hyman,	M.,	do.	1557 N. 11th St.
Wilson, Bayard K.,	M.,	do.	3106 Berks St.
Wise, Albert Montalbin,	Wh.,	Carthage, Mo.,	3702 Spruce St.

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Name.	Course.	Residence.	City Address.
STUDENTS OF THE SECOND YEAR.			
Bellman, Lawrence Stevens,	Arch.,	Toledo, O.,	214 S. 37th St.
Bradin, Mary Emma,	M.,	Philadelphia,	3722 Locust St.
Churchman, Clarke Wharton,	Arch.,	do.	3339 Walnut St.
Close, Clarence William,	I. Dec.,	Pittsburg,	3607 Locust St.
Cummings, Orlando Jayne,	M.,	West Chester,	[119 E. Market St.]
Davis, Martha,	I. Dec.,	Philadelphia,	902 Spruce St.
Dixon, Clayton Gilbert,	M.,	Wallingford,	
Foulkrod, Anna Krewson,	M.,	Philadelphia,	479 Lyceum Ave., Rox.
Fox, Mary Woodfield,	M.,	do.	8048 Frankford Ave., Holmesburg.
Gesing, Matilda B.,	M.,	do.	313 W. Norris St.
Gillette, Leon Narcisse,	Arch.,	Minneapolis, Minn.,	3913 Woodland Ave.
Hart, Walter Horner,	Sc. I,	Philadelphia,	2010 Wallace St.
Henry, Harriet Anna Etienne,	M.,	do.	5520 Germantown Av.
Howell, William Roberts,	I. Dec.,	do.	3818 Locust St.
Krieg, Charles Philipp,	Arch.,	Scranton,	260 S. 38th St.
Kuenzli, Edwin Oscar,	Arch.,	Milwaukee, Wis.,	3704 Walnut St.
Lincoln, Frederic Foster,	Arch.,	Woonsocket, R.I.,	105 S. 34th St.
Miller, Ida May,	M.,	Philadelphia,	1219 S. 15th St.
Noble, Rebecca,	M.,	do.	3447 Woodland Ave.
Oglesby, Frank Nathan,	M.,	Chester,	[220 E. 9th St.]
Paul, Florence Mabel,	M.,	Philadelphia,	3310 Baring St.
Pedrick, Edward Watson,	M.,	do.	716 Catharine St.
Piper, Grace Welsh (Mrs.),	M.,	do.	3 N. 50th St.
Porter, May,	M.,	do.	2215 St. Albans St.
Powel, Eva Naomi,	M.,	do.	19 S. 40th St.
Prevost, Ernest Elmer,	M.,	do.	2329 Gratz St.
Rheinfrank, George Bruckner,	Arch.,	Perrysburg, O.,	3715 Woodland Ave.
Rodes, Maree,	I. Dec.,	Philadelphia,	1803 Francis St.
Slocum, Harris Augustus (Mrs.),	M.,	do.	1427 Walnut St.
Ward, Alfred Louis,	I. Dec.,	do.	Dorm. 439, K.
Whitehead, Hannah Wilkins,	M.,	do.	4830 Westminster Ave.
Worrell, Edna Randolph,	M.,	do.	State Road, Frankf'd.
Yerkes, William Tompkins,	M.,	Berwyn.	
Zakrzewska, Theodora,	M.,	Philadelphia,	2034 Tioga St.
STUDENTS OF THE FIRST YEAR.			
Baugh, Arthur Primrose,	I. Dec.,	Philadelphia,	Aldine Hotel.
Betts, Norman Sinclair,	B.,	do.	1609 Girard Ave.
Cameron, Alpin William,	Wh.,	Ridgewood, N. J.	Dorm. 233, H.
Carr, John Thomas,	Wh.,	Philadelphia,	1302 Carpenter St.
Chambers, Mary Ewing,	M.,	do.	7211 Woodland Ave.
Conant, Wallace Brainard,	Wh.,	Littleton, Mass.,	121 S. 34th St.
Condit, Floyd Morton,	Wh.,	Beardstown, Ill.,	3344 Walnut St.
Craig, Jeannette,	M.,	Philadelphia,	3731 Fairmount Ave.
Delone, Francis Xavier,	Wh.,	Harrisburg,	Dorm. 107, B.
Dick, Lilias Eloise,	M.,	Philadelphia,	1127 S. 11th St.
Diller, Walter Ludwig,	Arch.,	Weldon, Montg. Co.	
Edwards, Gertrude Wallace,	M.,	Philadelphia,	2919 Richmond St.

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Name.	Course.	Residence.	City Address.
Fairchild, Eddy,	Arch.,	Dayton, O.,	3721 Spruce St.
Flavell, Frank,	Wh.,	Philadelphia,	5340 Greene St., Gtn.
Fuller, Frederick Milton,	Wh.,	Meadville,	3729 Spruce St.
Greiner, William Lang,	M.,	Philadelphia,	117 N. 20th St.
Hardt, Frank McCulley,	Wh.,	do,	3406 Powelton Ave.
Henderson, Samuel Jones,	Wh.,	Nyack, N. Y.,	Dorm. 304, A.
Hoover, Ira Wilson	Arch.,	Perrysburg, O.,	66 N. 36th St.
Ingram, Walter Hibbard.	M.,	Philadelphia,	666 N. 33d St.
Jory, Herbert Godfrey,	Arch.,	Baltimore, Md.,	306 N. 32d St.
Kast, Miller Isaac,	Arch.,	Mechanicsburg,	3309 Walnut St.
Kennedy, Charles Arthur,	M.,	Philadelphia,	1647 S. 5th St.
Kiesling, Leonard Charles,	Sc. 1,	do.	2211 N. 6th St.
Kolbe, Arno,	Arch.,	Denver, Colo.,	120 S. 37th St.
Kraber, George Reichenbaugh,	I. Dec.,	York,	914 N. 6th St.
Lewis, Anna Virginia,	M.,	Philadelphia,	4521 Chester Ave.
Loeb, Benjamin Franklin,	Wh.,	do.	2124 Spring Garden St.
McCorkell, Cecelia,	M.,	do.	3819 Hamilton St.
Macomb, Joseph Williams,	M.,	Merchantville, N. J.	
Matthews, Perla Anna Killian,	M.,	Philadelphia,	868 N. 22d St.
Nowinski, David,	M.,	do.	2531 Arch St.
Rolin, William Alphonso,	Wh.,	do.	1707 Spring Garden St.
Rothrock, William John,	M.,	Wilmington, Del.,	[1407 W. Third St.]
Sargent, Florence Dysart,	M.,	Bellwood.	
Schanche, Henninge Krohn, Mrs.	M.,	Philadelphia,	3401 Gray's Ferry Rd.
Shea, Katherine,	I. Dec.,	do.	808 Federal St.
Sheip, Henry Landis,	Wh.,	do.	Oak Lane.
Smith, George Clinton,	Arch.,	Harford, Md.,	3441 Walnut St.
Snelbaker, Mary Keziah (Mrs.),	M.,	Philadelphia,	523 Green St.
Swain, William Moseley,	I. Dec.,	do.	3925 Chestnut St.
Tilly, Gertrude Elizabeth,	M.,	Darby,	[910 Ridge Ave.]
VanKirk, Bertha S. (Mrs.)	M.,	Merchantville, N. J.	
Warren, William Arthur,	Arch.,	Chicago, Ill.	66 N. 36th St.
Warthman, James Harris,	Wh.,	Philadelphia,	2123 Green St.
Wellens, Jules Constantine, Jr.,	M.,	do.	Logan.

PARTIAL STUDENTS.

Benson, Richard Dale, Jr.,	Wh.,	Philadelphia,	1120 Spruce St.
Biggerstaff, William,	A.,	do.	2510 Coral St.
Bitting, Harry Stahle,	M. E.,	Williamson School,	
Callnan, Sara Boyer,	B.,	Philadelphia,	2504 Oxford St.
Coates, Robert,	Ch.,	do.	Abbotsford Ave., Gtn.
Dean, James Joseph,	A.,	Lawrence, Mass,	[Villanova]
Eachus, Davis Ruth,	A.,	West Chester.	
Evans, Edmund Cadwalader,	Arch.,	Haverford.	
Folwell, Nathan Thomas,	Wh.,	Sharon Hill.	
Gelder, Edgar Earl,	B.,	Philadelphia,	3735 Spruce St.
Hamilton, Adam Boyd, Jr.,	Wh.,	Harrisburg,	Dorm. 124, F.
Harper, Alexander James,	Arch.,	Lowell, Mass.,	3721 Spruce St.
Harris, Joseph William,	Ch.,	Philadelphia,	913 Diamond St.
Hastings, Charles Augustus,	C. E.,	do.	2216 Woodstock St.
Henry, Jessie Kellogg,	B.,	do.	2003 N. 21st St.

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Name.	Course.	Residence.	City Address.
Heyer, Charles Henry,	Wh.,	Philadelphia,	Bustleton.
Hopkins, James Stolp,	Wh.,	Aurora, Ill.,	216 S. 37th St.
Jayne, David Walker,	Ch. E.,	Philadelphia,	931 N. Broad St.
Jeffers, Roland Hamilton,	Ch.,	York,	109 S. 34th St.
Jenks, Herbert Emery,	C. E.,	Philadelphia,	Byberry.
Kapp, Edward Rider,	C. E.,	Ruxton, Md.,	3202 Summer St.
Kirkbride, Mary Butler,	B.,	Philadelphia,	1406 Spruce St.
Lapp, Christian Leon,	Sc.,	Malvern.	732 N. 40th St.
Lintner, Harry Hodge,	A.,	Philadelphia,	2032 Arch St.
Lodor, Elmira,	B.,	do.	1313 N. 12th St.
McCormick, John Hays,	Wh.,	Williamsport,	221 DeKalb Sq.
McDonald, James Aloysius,	B.,	Andover, Mass.,	[Villanova.]
Manter, Lucy,	B.,	Nantucket, Mass.,	Overbrook.
Mayer, George Lewis,	Sc.,	Philadelphia,	3618 Chestnut St.
Mitchell, Walter Mann,	Wh.,	do.	112 N. 34th St.
Moore, Mary Cassandra,	B.,	Ocean City, N. J.,	4013 Spring Garden St.
Moore, Ruth Gawthrop,	B.,	Philadelphia,	1815 N. 17th St.
Nicholson, Katharine Stanley,	B.,	do.	2106 Chestnut St.
Oliver, Leon Stauffer,	Wh.,	do.	1700 Diamond St.
Patterson, Charles Adams,	Ch.,	Mountain View, N J.,	215 De Kalb Square.
Percival, George Jones,	C. E.,	Philadelphia,	1720 N. 52d St.
Pickering, Maylin Joseph,	Wh.,	do.	704 S. Washington Sq.
Read, Henry Kendall,	Wh.,	Rosemont,	435 Chestnut St.
Reddie, Jacobina Somerville,	B.,	Philadelphia,	4100 Westminster Ave.
Remmey, John Boljoano,	A.,	do.	1928 E. Cumberland St.
Rosengarten, Joseph George, Jr.,	Ch.,	do.	325 S. 17th St.
Savage, Henry Chauncey,	Ch.,	do.	1223 Walnut St.
Scattergood, Mary Rebecca,	B.,	do.	471 Marshall St.
Schamberg, Gilbert Frank,	Wh.,	do.	831 N. Broad St.
Segar, Cornelia Winder,	B.,	Hampton, Va.,	2043 N. College Ave.
Setzler, Horace Brawnback,	Ch.,	Parker Ford,	
Sharp, Neilson,	Ch.,	Philadelphia,	239 W. Johnson St., Gtn.
Suto, Kichinosuké,	A.,	Osaka, Japan,	5000 Woodland Ave.
Von Patten, Charles Strain,	Wh.,	Burlington, Vt.,	3413 Walnut St.
Voorhees, Gerald Ehninger,	Ch. E.,	Philadelphia,	1025 Spruce St.
Wallace, Fred Beck,	Wh.,	do.	1214 N. 16th St.
Watson, Paul,	Ch. E.,	do.	131 N. 20th St.
Weil, Clarence Herbert,	Wh.,	New York, N. Y.,	Dorm. 103, A.
Whitaker, William,	B.,	Philadelphia,	Adams and Sellers Sts., Fkd.
Wilkins, Eugene Bradley,	Ch.,	Washington, D.C.,	204 S. 36th St.
Wille, Maurice Franklin,	M. E.,	Philadelphia,	2600 Girard Ave.
Wingert, Lewis Peter,	Wh.,	Hagerstown, Md.,	3344 Walnut St.
Ziegler, Howard Philip,	Ch.,	Reading,	215 De Kalb Sq.

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STUDENTS TAKING COURSES FOR TEACHERS.

Name.	Residence.	City Address.
Adair, Mary,	Philadelphia,	1911 Mt. Vernon St.
Addicks, Florence,	do.	134 S. 20th St.
Aiken, John Charles,	Berwyn.	
Alwine, Margaret Barnes,	Philadelphia,	3111 Wharton St.
Anderson, Elizabeth Neely,	do.	1745 N. 19th St.
Anstice, Helen Watson,	do.	1810 Jefferson St
Arnold, Agnes Fraser,	do.	343 Church Lane, Gtn.
Baker, Louie,	Northbrook,	304 N. 35th St.
Barber, Linda Harlton,	West Chester.	
Barnard, Clara H.,	Kennet Square.	
Barnes, Anne Hampton,	Philadelphia,	1727 Spruce St.
Bartholemew, Wallace, Edgar,	do.	4516 Hoopes St.
Batt, Owen Elton,	Southampton.	
Beitler, Leila Oberholtzer,	Philadelphia,	634 Marshall St.
Bingham, Florence,	do.	708 N. 44th St.
Bolger, Katharine Cecelia,	do.	2339 E. Cumberland St.
Borton, Helen Griscom,	Woodstown, N. J.	
Brinkmann, Edith,	Philadelphia,	1821 North St.
Brinkmann, Luise Dorothy,	do.	1821 North St.
Brock, Frances Ingram,	do.	1710 Chestnut St.
Brooks, Mary Barkalow,	do.	2032 Chestnut St.
Brosius, Florence Rachel,	Avondale.	
Buckley, Charles,	Philadelphia,	5007 Penn St., Fkd.
Bugbee, Rilla,	Woodbury, N. J.	
Bunting, Helen Masters,	Haverford.	
Burmester, Sophia Wilhelmina,	Philadelphia,	2103 Green St.
Burr, Mary Grafton,	do.	3956 Pine St.
Burrough, Clara Stewart,	Camden, N. J.,	[605 N. 2d St.]
Caine, Estella	Conshohocken.	
Caldwell, Evelina Donne,	Philadelphia,	2421 Colorado St.
Caldwell, Naomi,	do.	2421 Colorado St.
Caraher, Anna Alicia,	do.	1613 N. 18th St.
Carey, Mrs. Katherine Echternach,	do.	1544 N. 6th St.
Carll, Mary Elmer	Camden, N. J.,	[507 N. 4th St.]
Caskey, Elizabeth,	Philadelphia,	1822 N. 11th St.
Casperson, Mary	do.	5905 Girard Ave.
Cavill, Teresa,	do.	2044 South St.
Channell, Ida Mary,	Berwyn.	
Charman, Frances Rowand,	Magnolia, N. J.	
Child, Lucy Burton,	Philadelphia,	1615 S. 15th St.
Chipman, Laura Eliot,	do.	2115 Master St.
Clark, Maud,	Philadelphia,	2416 Grant Ave.
Clayton Elizabeth Chandler,	Chester Heights.	
Cliff, Etta,	Philadelphia,	911 N. 12th St.
Clendenin, Elizabeth Waugh,	Darby.	
Cloud, Anna Wood,	Lansdowne.	

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Name.	Residence.	City Address.
Clyde, Anna M.,	Philadelphia,	1536 Morris St.
Coe, Alice Jane.	do.	4410 Locust St.
Conine, Virginia Thomas,	do.	235 S. 45th St.
Cooper, Alice Lynn,	Linwood.	
Coulter, Adela Rutherford,	Chester,	[1224 Providence Ave.]
Coxey, Graciene Saville,	Philadelphia,	3957 Aspen St.
Croll, Mrs. Jennie Smyth,	Gettysburg,	233 W. Tulpehocken St., Gtn.
Crosby, Annie Jemima,	Philadelphia,	1541 S. 16th St.
Crowell, Hannah Matthews,	do.	2217 Mt. Vernon St.
Cummings, Lydia Rhodes,	Media,	[Charter House.]
Cundey, Zeta Berenice,	Philadelphia,	2202 N. 15th St.
Custis, Edith May,	do.	5638 Morton St., Gtn.
Dalpé, Frances Isabelle,	do.	818 Corinthian Ave.
Dalrymple, Mary Stewart,	do.	1719 Park Ave.
Darnell, Florence Holland,	do.	1618 Willington St.
Davis, Caroline Hare,	do.	1623 Spruce St.
Davis, Clara Augusta,	Chester,	[716 W. 5th St.]
Davis, Irene (Mrs.),	Philadelphia,	646 N. 32d St.
Deacon, Gertrude Newbold,	Mt. Holly, N. J.	
Delany, Adelaide Margaret,	Philadelphia,	27 S. 44th St.
Dewees, Florence Helen,	do.	3510 N. 8th St.
Doyle, Florence Alethea,	do.	1707 Judson St.
Dunn, Mary Eleanor,	Bryn Mawr.	
Eaton, Anne Clarke,	Philadelphia,	1917 Master St.
Eaton, Margaret Clarke,	do.	1917 Master St.
Eckels, George Preston,	Glenolden.	
Eduardo, John,	Philadelphia,	3217 Engleside Place.
Eisenbeis, Louise Isabel,	Chester,	[811 Barclay St.]
Eisenberger, Anna Mary,	Wayne.	
Elfreth, Miriam,	Westtown.	
Embree, Emma Doane (Mrs.),	West Chester.	
Evans, Grace,	Moorestown, N. J.	
Evaul, Elizabeth Susanne,	Palmyra, N. J.	
Ewing, Martha Harding,	Moorestown, N. J.	
Eyre, Abbie Ann,	Williamson School.	
Farr, Mary Parry,	Philadelphia,	258 S. 44th St.
Farrand, Harriet Eleanor,	do.	910 N. 7th St.
Farrell, Mary Roberts,	Wayne.	
Fenimore, Mary Anna,	Camden, N. J.,	[532 S. 3d St.]
Filbert, Mary Witmer,	Philadelphia,	1534 Centennial Ave.
Foulkrod, Jennie,	do.	1826 Harrison St., Fkd.
Fox, Mattie Anne,	Kirkwood, N. J.	
French, Rachael Eve,	Mullica Hill, N. J.	
Fritz, Mary White,	Philadelphia,	2238 Mt. Vernon St.
Fuller, Cora,	Horsham.	
Fussell, Alice,	Media.	
Futcher, Rev. Clifford Paynter,	Philadelphia,	1013 Annin St.
Gardiner, Sarah (Mrs.),	do.	2036 N. Broad St.

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Name.	Residence.	City Address.
Gardner, Ella Julia,	Cynwyd.	
Garrison, Mary Jennie,	Lansdowne,	["The Mansion."]
Gary, Edith May,	Philadelphia,	935 N. 43d St.
Gault, James Hunter,	do.	1603 Summer St.
George, Alice Latimer,	do.	824 N. 24th St.
Godfrey, Viola E.,	do.	2006 Mervine St.
Gondkop, Elsie,	do.	5123 Wayne St., Gtn.
Green, Blanche,	do.	2203 Thompson St
Griffith, Mary Dechert, Mrs.,	do.	3914 Walnut St.
Grissim, Clara,	do.	1025 E. Montgomery Ave.
Griswell, Lydia Anne,	Norwood.	
Grove, Clara E,	Coatesville,	2426 Christian St.
Haagen, Emma,	Beech Creek,	[131 E. 13th St., Chester.]
Hahn, Emma Jane	Chester,	[601 E. 14th St.]
Hansell, Mary Rowland,	Philadelphia,	143 N. 18th St.
Harkinson, Ira Helen,	do.	1715 N. 28th St.
Harkinson, Rev. Roger S.,	do.	1715 N. 28th St.
Hartley, Ella Lake,	Palmyra, N. J.	
Hartzell, Rena Grace,	Philadelphia,	2841 Oxford St.
Haviland, Walter Winship,	Media,	140 N. 16th St.
Henson, Rev. George W.,	Philadelphia,	1025 W. Lehigh Ave.
Hiddleson, Cilla Elizabeth,	Downingtown.	
Higgins, Helen Taylor,	Philadelphia,	1437 N. 19th St.
Hoopes, Elizabeth Donnell,	Wilmington, Del.,	4219 Otter St.
Hoopes, Lillian,	Philadelphia,	519 S. 41st St.
Horner, Charlesanna,	Wayne.	
Hottle, Howard Pierre,	Philadelphia,	1828 Tioga St.
Hough, Jean Seymour,	Media,	[331 W. State St.]
Huber, Joanna Louisa,	Downingtown.	
Hurd, Charles Henry,	Harrisburg,	[716 N. 6th St.]
Ireland, Loretta Ferguson,	Camden, N. J.,	[330 Cooper St.]
Jackson, Anna Rebecca,	Kelton.	
Jacob, Louisa Mary,	Moorestown, N. J.	
Jamieson, Adelaide.	Philadelphia,	Angora.
Janney, Marianna,	do.	1535 N. Broad St.
Johnson, Alberta Miller,	Berwyn.	
Johnson, Erminie L.,	Philadelphia,	1807 N. 19th St.
Jones, Emma Clarence,	do.	2136 Uber Place.
Jones, Lila Strong,	do.	840 N. 24th St.
Kantner, Katie Jane,	do.	2419 N. 10th St.
Keller, Harriet Browne,	do.	611 E. Chelten Ave., Gtn.
Keller, Mabel Hershey,	do.	611 E. Chelten Ave., Gtn.
Kelly, Elizabeth Marie,	do.	1002 S. 11th St.
Kennedy, Lillian,	do.	1426 Master St.
Knapp, Frances Conestoga,	Berwyn.	
Knapp, Nelene Groff,	Philadelphia,	2352 Jefferson St.
Knight, Emma Taft,	Lansdowne.	

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Name.	Residence.	City Address.
Kohler, Ruth,	Glenside.	
Kready, Laura Fry,	Philadelphia,	1721 Willington St.
Kyner, Eleanor Virginia,	Moores.	
Landis, John Horace,	Conshohocken.	
Latshaw, Allen,	Philadelphia,	38 N. 36th St.
Laws, Anna Cantrell,	do.	407 S. 42d St.
Laws, Llewellyn,	do.	Holmesburg.
Lehman, Clara Bell,	do.	1533 N. 10th St.
Leland, Marie Katherine,	Cramer Hill, N. J.	
Lewis, Louise Allinson,	Philadelphia,	4714 Warrigton Ave.
Lindsay, Elizabeth Lavell,	do.	1028 Parrish St.
Liveright, Ada Fleischer,	do.	718 N. 20th St.
Lochhead, Catherine Pollock,	do.	2515 Thompson St.
Ludwick Clara McFarlan,	East Dowingtown.	
Lukens, Helena,	Philadelphia,	3415 N. 15th St.
Lynch, Mary Antonia,	do.	1336 Pine St.
McAlpine, Martha,	do.	Oak Lane.
McCorkell, Cecilia,	do.	3819 Hamilton St.
McCormick, John Hays,	Williamsport,	221 De Kalb Square.
McCoy, Margaret Jacobs,	Philadelphia,	W. Gravers' Ln., C. Hill.
McCracken, Mary,	do.	2015 Memphis St.
McDonnell, Mary A.,	do.	1219 S. 7th St.
McLaren, Janet Stewart,	Chester,	[116 Penn S.,]
Machette, Helen,	Philadelphia,	1425 N. 17th St.
Mack, Frances May,	Lansdowne,	[Owen & Drexel Avs.]
Mackenzie, Marion,	Philadelphia,	4816 Florence Ave.
MacMillen, Rev. Frederick Alexander,	do.	157 N. 20th St.
Maginniss, Lillian Groves,	do.	3811 Spruce St.
Mather, Ella Jane,	Radnor.	
Mendenhall, Clara,	Wilmington, Del.	[910 Adams St.]
Merritt, Gertrude,	Haddonfield, N. J.	
Miller, Mary A.,	Philadelphia,	1838 N. Bouvier St.
Mitchell, Elizabeth Kearsley,	do.	1633 Spruce St.
Mitchell, Lucy Wright,	do.	515 Woodland Terrace.
Montanye, Edwin Yerkes,	do.	Holmesburg.
Mooney, Belle Haines,	Pleasant Grove,	2423 N. College Ave.
Moore, Laura Weston,	Bridgeton, N. J.,	[24 Bank St.]
Moore, Ruth Gawthrop,	Philadelphia,	1815 N. 17th St.
Moore, Sara Frances,	Woodstown, N. J.	
Moore, Matilda Romig,	Anselma,	18th and Arch Sts.
Morley, Elizabeth,	Adamsford, P. O.	
Mortimer, Caroline,	Philadelphia,	210 Bringhurst St., Gtn.
Moyer, Herbert Baldwin,	Norristown,	[1327 De Kalb St.]
Moyer, Orlando C.,	Chester,	[621 Welsh St.]
Mulliner, Clara Louise,	Camden, N. J.,	[432 Pearl St.].
Niblo, Caroline Elizabeth,	Conshohocken.	
Parmenter, Eleanor,	Camden, N. J.	[530 Royden St.]
Parry, Kate Springer,	Philadelphia,	1718 N. 15th St.
Parry, Samuel Davis,	do.	1618 Green St.

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Name.	Residence.	City Address.
Patterson, John Edward,	New York, N. Y.,	3250 Sansom St.
Paxson, Emma Fell,	Philadelphia,	1725 Oxford St.
Pennypacker, Anna Maria Whitaker,	do.	1540 N. 15th St.
Perring, Louise Franklin,	do.	619 N. 48th St.
Pratt, Caroline Louise,	do.	315 N. 33d St.
Price, Blanche Dorothy,	do.	1919 Master St.
Price, Ida May,	do.	208 N. 36th St.
Prichard, Mary Frothingham,	do.	159W. Coulter St., Gtn.
Pyfer, Bessie Catharine,	Sharon Hill.	
Quigley, Ella May,	Willow Grove.	
Quint, Anna E.,	Camden, N. J.,	[442 Line St.]
Reaney, Laura Estelle,	Chester,	[608 W. 8th St.]
Reinhardt, Mary Bailey,	Philadelphia,	2121 Mt. Vernon St.
Reinhardt, Esther Meredith,	do.	2121 Mt. Vernon St.
Richards, Grace Rawlings,	do.	1909 Chestnut St.
Ritchie, Abbie,	Camden, N. J.,	[324 Mt. Vernon St.]
Robbins, Olive Louise,	Philadelphia,	1936 Arch St.
Roberts, Jennie,	Norristown,	[120 E. Chestnut St.]
Rockhill, Hannah J.,	Conshohocken.	
Rockwell, Corinne,	Philadelphia,	3322 Walnut St.
Rogers, Jennie,	Rosemont,	1805 Spg. Garden St.
Rorer, Mary Louise,	Prospectville,	1919 Gratz Ave.
Ross, Mattie Ann,	Morton.	
Ross, Violet Edna,	Philadelphia,	1301 Brown St.
Roth, Anna May,	Downingtown.	
Roth, Emma,	Philadelphia,	1016 N. 5th St.
Ruehman, Lillie,	do.	2201 Jefferson St.
Saylor, Harry Detwiler,	Bryn Mawr.	
Sayre, Louis,	Philadelphia,	164 W. Chelten Ave., Gtn.
Scattergood, Ida Maria,	do.	3537 N. 16th St.
Scheel, Elizabeth A.,	do.	1952 N. 24th St.
Sears, Hannah,	Chester,	[2131 W. 3d St.]
Senn, Ethel Showaker,	Philadelphia,	211 S. 5th St.
Sherburne, Susan Seymour,	do.	653 N. 15th St.
Sherman, Anne Gess	Lexington, Ky.,	1416 Venango St.
Simpson, Sara Hamilton,	Philadelphia,	424 Franklin St.
Smith, Laura Belle,	Chester,	[323 Ulrich St.]
Speakman, Nellie Clingan,	West Chester,	[112 Price St.]
Spence, Bessie Helen,	do.	[220 N. Franklin St.]
Spencer, Pauline Wolcott,	Philadelphia,	3421 Race St.
Spicer, Esther,	Media.	
Stamey, Emily,	Ridley Park.	
Sterling, Sara Hawks,	Philadelphia,	709 S. 9th St.
Stiteler, Frances Middleton,	Anselma,	18th and Arch Sts.
Stoever, Sue Elizabeth,	Philadelphia,	Mt. Airy.
Stokes, Ella Theresa,	do.	309 N. 65th St.
Stott, Edith Charlotte,	do.	2022 Pine St.
Strain, Amy,	Merchantville, N. J.,	1538 Columbia Av
Stryker, Elizabeth,	Riverside, N. J.	

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Name.	Residence.	City Address.
Swain, Mary Wood,	Bristol.	
Sweigard, Bertha Leonore,	Philadelphia,	3707 Walnut St.
Swing, Mary Comly,	do.	1718 Unity St., Fkd.
Taggart, Bertha Parker,	do.	2011 Fairmount Ave.
Takemi, Kashech,	Tokio, Japan.	1543 Newkirk Ave.
Thackara, Marie Cowell,	Philadelphia,	4053 Powelton Ave.
Thomas, Emma Louise Grant,	do.	1619 Wallace St.
Thomas, Emma Virginia,	do.	472 Lyceum Ave., Roxb.
Thompson, Lou Dalbow,	Pennsgrove, N. J.	
Thomson, Lida Margaret,	West Chester,	[241 W. Washington St.]
Tindal, Caleb Camey,	Dover, Del.	
Trimble, Margaret Ballentine,	Whitford.	
Turner, Elisabeth Davis,	Lansdowne.	
Twining, Edith,	Philadelphia,	1517 Marshall St.
Vincent, Ethel,	do.	1216 Master St.
Waite, Clara Baker,	Chester,	[905 W. 8th St.]
Walker, Laura Cordelia,	Downingtown.	
Wallace, Lillian,	Philadelphia,	415 S. 16th St.
Walter, Cornelius Jacob,	Newtown.	
Wass, Mary Ella,	Philadelphia,	209 Bringhurst St., Gtn.
Watters, Leon Hamline,	Media.	
Wattson, Kathleen Farr,	Philadelphia,	Chestnut Hill.
Weatherly, Mary,	do.	107 N. 19th St.
Welch, Kate Wilkes,	do.	1720 Arch St.
Wemmer, Reba Emma,	Wayne.	
White, Gertrude,	Philadelphia,	3438 N. 18th St.
White, Jennie Keefer,	do.	Thorp's Lane, Gtn.
Whitson, Hannah,	Swarthmore.	
Williams, Ella W.,	Berwyn.	
Williams, Florence,	Chester,	[711 W. 7th St.]
Williams, Mary C. I.,	Wilmington, Del.,	[205 Washington St.]
Williams, Winifred W.,	Philadelphia,	1747 Franklin Ave.
Wilson, Martha E.,	do.	2439 Jasper St.
Wollaston, Caroline May,	Kennett Square.	
Worrell, Mary Grace,	Media,	[18 W. Front St.]
Workman, Martha Adelaide,	Philadelphia,	1922 W. Dauphin St.
Wright, Dorcas Erskine,	do.	4843 Willow St., Fkd.
Young, Fannie,	do.	2018 S. 16th St.
Young, Mariamne Roxana Seward,	do.	2507 N. 19th St.

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	A., Arts and Science.	Wh., Finance and Economy.	B., Biology.	M., Music.	Sc., Specific Courses not Decided.	Sc., Science and Technology.			Four-Year Technical Courses.						I. Dec., Interior Decoration.	Totals.
						Sc. 1, Chemistry.	Sc. 2, Civil Engineering.	Sc. 3, Mechanical Engineering.	Ch., Chemistry.	Ch. E., Chemical Engineering.	C. E., Civil Engineering.	M. E., Mechanical and Electrical Engineering.	Arch., Architecture.			
Post-Seniors	...	...	...	...	...	1	1	...	...	...	...	...	...		...	2
Seniors	40	14	4	...	...	2	3	4	9	1	5	21	12		...	115
Juniors	36	11	6	...	...	1	1	5	8	1	5	20	8		...	102
Sophomores	51	23	3	...	5	...	...	...	9	4	9	28	7		...	139
Freshmen	47	17	12	...	5	...	...	...	10	5	13	20	11		...	140
Students in Special Courses. Third Year.	...	2	...	10	...	1	...	...	...	...	...	...	...		...	13
Second Year.	...	...	...	21	...	1	...	...	...	...	...	...	7		5	34
First Year.	...	12	1	20	...	1	...	...	...	...	...	...	8		4	46
Partial Students	6	15	14	...	2	...	...	...	10	3	4	2	2		...	58
Totals	180	94	40	51	12	7	5	9	46	14	36	91	55		9	649

Students taking Courses for Teachers . . . 277

Total 926

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DEPARTMENT OF PHILOSOPHY.

FELLOWS AND SCHOLARS.

ON THE GEORGE LEIB HARRISON FOUNDATION.

SENIOR FELLOWS.

In English:

Name.	Residence.	City Address.
Raymond Macdonald Alden,	Philadelphia,	4218 Chester Ave.

A. B. (Pennsylvania, 1894). A. M. (Harvard, 1896). Ph. D. (Pennsylvania, 1898). Instructor in English, Columbian University, 1894–1895. Graduate student and Assistant in English, Harvard, 1896–1897. Harrison Fellow in English, 1897–1898.

In Chemistry:

Willett Lepley Hardin,	Lima, O.,	Dorm. 145, N.

B. S. (Buchtel, 1893). Ph. D. (Pennsylvania, 1896). Fellow in Chemistry, 1895–1896. Senior Fellow, 1896 to date.

In European History:

Arthur Charles Howland,	South Danby, N.Y.,	Dorm. 441, K.

A. B. (Cornell, 1893). Ph. D. (Pennsylvania, 1897). Traveling Fellow, Cornell, 1894–1895, student at Göttingen and Leipzig. Graduate student, Cornell, 1895–1896. Harrison Fellow in European History, 1896–1897. Instructor in History, State University of Iowa, 1897–1898.

In American History:

Charles Henry Lincoln,	Millbury, Mass.,	Dorm. 254, O.

A. B., A. M. (Harvard, 1893, 1894). Ph. D. (Pennsylvania, 1896). Assistant in History and Politics, Harvard, 1892–1894. Graduate student, Pennsylvania, October to December, 1894 and 1895–1896 Instructor in History and Economics, Bates College, Lewiston, Me., January to June, 1895. Senior Fellow in Political Science, 1896–1897. Instructor in History, De Lancey School, Philadelphia, 1897–1898.

In Economics:

Walter Edward Weyl,	Philadelphia,	Dorm. 224, E.

Ph. B. (Pennsylvania, 1892). Ph. D. (Pennsylvania, 1897). Wharton School Fellow, 1892–1893; Halle, 1893–1894; Berlin, 1894–1895. Worked in London, Paris and Berlin, 1895–1896. Fellow in Economics, 1896–1897. Senior Fellow, 1897 to date.

FELLOWS.

In Philosophy:

Hartley Burr Alexander,	Lincoln, Neb.,	3314 Woodland Ave.

A. B. (University of Nebraska, 1897). Graduate student, University of Nebraska, 1897–1898.

In Political Science:

William Harvey Allen,	Duluth, Minn.,	Dorm. 422, E.

University of Chicago, 1894–1896. Universities of Berlin and Leipzig, 1896–1897. A. B. (University of Chicago, 1897). Graduate student and Fellow, Chicago, 1897–1898.

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In American History:

Name.	Residence.	City Address.
Herbert Eugene Bolton,	Philadelphia,	3230 Lancaster Ave.

B. L. (University of Wisconsin, 1895). Graduate student, University of Wisconsin, 1895–1897. Harrison Fellow in American History, 1897–1898.

In Classical Languages:

Barclay White Bradley,	Philadelphia,	2221 Spg. Garden St.

A. B (Pennsylvania, 1897). Harrison Scholar in Classical Languages, 1897–1898. Greek.

In English:

Joseph Vincent Crowne,	Philadelphia,	1642 Francis St.

A B. (St. Joseph's College, 1896). A. M. (Pennsylvania, 1898). Graduate student, 1896 to date.

In Semitics:

Victor William Dippell,	Philadelphia,	1230 N. 6th St.

A. B. (Pennsylvania, 1895). Graduate student, 1895–1897. Harrison Fellow in Semitics, 1897 to date. Assyrian.

In Mathematics and Astronomy:

Jeremiah Marcus Hadley,	Philadelphia,	51 N. 59th St.

B. S. (Earlham College, 1896). Graduate student, Earlham College, 1896–1897. Harrison Fellow in Mathematics and Astronomy, 1897 to date. Astronomy.

In Economics:

Edward Sherwood Meade,	Youngstown, O.	110 S. 17th St.

A. B. (DePauw, 1896). Graduate student and Fellow, Chicago, 1896–1898.

In Pedagogy:

Charles Dickens Nason,	Philadelphia,	2611 Franklin St.

B. S. (Haverford, 1896). Graduate student, 1896–1897. Harrison Fellow in Pedagogy, 1897 to date.

In Germanics:

Martin Schütze,	Philadelphia,	210 S. 37th St.

Graduate of Gymnasium of Güstrow, Mechlenburg-Schwerin, Germany, 1886. Student, Universities of Freiburg in Baden, and of Rostock, 1886–1889. Harrison Fellow in Germanics, 1897 to date.

In Chemistry:

Alfred Tingle,	Aberdeen, Scotland,	3916 Sansom St.

B. Sc. (University of Aberdeen, 1896, London University, 1897). Harrison Fellow in Chemistry, 1897 to date.

In Indo-European Philology:

Lee Maltbie Dean,	Bridgeport, Conn.,	Dorm. 423, E.

B. A. (Yale, 1896). Graduate student, Yale, 1896–1897. Harrison Fellow in Indo-European Philology, 1897 to date.

In Mathematics:

John Brookie Faught,	Bloomington, Ind.,	3270 Chancellor Place.

A. B. (Indiana State University, 1893). Professor of Mathematics, Vincennes University, Vincennes, Ind., 1893–1894. Instructor in Mathematics, Indiana State University, 1894 to date. Absent on leave as graduate student in Mathematics, Chicago University, 1896–1897.

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In Germanics:

Name.	Residence.	City Address.

Orlando Faulkland Lewis, Tufts College, Mass., Dorm. 341, E.

A. B., A. M. (Tufts College, 1895, 1897). Assistant in Modern Languages, Tufts College, 1895–1897. Student University of Munich, 1897–1898.

In American History:

Claude Halstead VanTyne, Tecumseh, Mich., 669 N. 34th St.

A. B. (University of Michigan, 1896). Student at Heidelburg, Leipzig and Paris, June, 1896, to November, 1897.

In Sociology:

George Ray Wicker, Geneseo, N. Y., 3270 Chancellor Place.

A. B. (Cornell, 1890). Principal of the Victor New School, Canandaigua, New York, 1893–1897. Graduate student, Cornell, 1897–1898.

SCHOLARS.

In English and History:

John Louis Haney, Philadelphia, 934 N. 11th St.

B. S. (Pennsylvania, 1898).

In Modern Languages:

Daniel Ernest Martell, Philadelphia, 102 S. 33d St.

A. B. (Pennsylvania, 1898).

In Classical Languages:

Isadore Merzbacher, Reading, 3432 Sansom St.

A. B. (Pennsylvania, 1898).

In History and Economics:

Frederick Logan Paxson, Philadelphia, 1725 Oxford St.

B. S. (Pennsylvania, 1898).

In History and Philosophy:

James Field Willard, Philadelphia, 3409 Baring St.

B. S. (Pennsylvania, 1898).

ON THE HECTOR TYNDALE FOUNDATION.

Fellow in Physics:

Morton Githens Lloyd, Philadelphia.

B. S. in E. E. (Pennsylvania, 1896). Tyndale Fellow in Physics, 1896 to date. (Absent on leave at Harvard University, 1897–1898, and at the University of Berlin, 1898–1899).

ON THE JOSEPH M. BENNETT FOUNDATION.

FELLOWS.

In Greek:

Mary Bartol, Lewisburg, 3350 Walnut St.

A. B., A. M. (Bucknell, 1894, 1895). Graduate student, Bucknell, 1894–1895; Michigan, 1895–1897. Bennett Fellow, 1897 to date.

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In European History:

Name.	Residence.	City Address.
Caroline Colvin,	Williamsburg, Ind.,	3350 Walnut St.

A. B. (Indiana, 1893). Instructor in History, Fort Wayne High School, 1893-1898.

ON THE FRANCES SERGEANT PEPPER FOUNDATION.

FELLOW.

In Psychology:

Anna Jane McKeag,	Washington,	3350 Walnut St.

A. B. (Wilson College, 1895).

ON THE MRS. BLOOMFIELD MOORE FOUNDATION.

FELLOWS.

In English:

Isabel Graves,	New Britain, Conn.,	3350 Walnut St.

Ph. B. (Wesleyan University, 1891). M. A. (Western Reserve University, 1897). Instructor in Latin and English, Cornell College, Mount Vernon, Iowa, 1891-1893. Graduate student, Wellesley, 1893-1894. Instructor in English, Binghamton (N. Y.) High School, 1894-1896. Assistant in English, College for Women, Western Reserve University, 1896-1897. Moore Fellow, 1897 to date.

In Chemistry:

Lily Gavit Kollock,	Philadelphia,	3350 Walnut St.

A. B. (Woman's College of Baltimore, 1895). Moore Fellow, 1897 to date.

THE ALUMNÆ FELLOWSHIP FOR WOMEN.

In Mathematics:

Roxana Hayward Vivian,	Boston, Mass.,	3350 Walnut St.

A. B. (Wellesley, 1894). Graduate student, Wellesley, 1896-1898.

HONORARY FELLOWSHIPS.

In Botany:

Adelina Frances Schively,	Philadelphia,	1503 Centennial Ave.

Certificate in Biology (Pennsylvania, 1892). Ph. D. (Pennsylvania, 1897). Assistant in Biology, Girls' Normal School, Philadelphia. Honorary Fellow in Botany, 1897 to date.

In Botany:

Samuel Christian Schmucker, West Chester.

A. B., S. B., A. M., S. M. (Muhlenberg, 1882, 1884, 1885, 1891). Ph. D. (Pennsylvania, 1893). Instructor in Biology, West Chester State Normal School. Honorary Fellow in Botany, 1897 to date.

STUDENTS.

Banes, Robert Coleman,	Philadelphia,	2021 Spring Garden St.

A. B. (Haverford, 1889). Botany, second year.

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Name.	Residence.	City Address.

Bartlett, Jarvis Henry, Philadelphia, 247 N. 20th St.
B. S. (Haverford, 1894). Pedagogy, first year.

Beach, Robert Mills, Philadelphia, 5000 Woodland Ave.
Student at Yale, 1879–1881. B. D. (Protestant Episcopal Theological Seminary, Cambridge, Mass., 1895). Mediæval History, second year.

Betts, Walter Cotgrave, Philadelphia, 3926 Pine St.
Rugby, England, 1885–1888; London University, 1888–1891; University of Berlin, 1896–1897. Philosophy, first year.

Blomgren, Carl August, Philadelphia, 1825 Fairmount Ave.
A. B. (Augustana College, 1885). Ph. D. (Yale, 1893). (Not candidate for a degree.) Assyrian, fifth year.

Boggs, Gilbert Hillhouse, Athens, Ga., 3729 Spruce St.
B. S. (University of Ga., 1896). Chemistry, second year.

Burns, Robert Lott, Philadelphia, 24 E. Clapier St., Gtn.
Supervising Principal, 1893 to date. Pedagogy, sixth year.

Carter, Josephine Mitchell, Philadelphia, 4023 Ogden St.
A. B. (Oberlin, 1892). English, third year.

Chapin, Arthur Thomas, Mt. Victory, Ohio, 320 E Broad St., Chester, Pa.
A. B. (Denison University, 1896). Instructor in Latin and Greek, Chester (Pa.) High School, 1897 to date. Greek, first year.

Cole, Thomas Sessions, Chester.
A. B. (Brown, 1886). Principal of Chester High School, 1890 to date. Latin fourth year. Absent on leave 1898–1899.

Cornman, Oliver Perry, Philadelphia, 2252 N. 20th St.
Graduate of Central High School, Philadelphia, 1884. Assistant in Chemistry, Pennsylvania, 1886. Supervising Principal, 1892 to date. Assistant in Psychology. Psychology, fifth year.

Crawley, Howard, Wyncote, Pa., Dorm. 249, N.
B. S. (Pennsylvania, 1897). Zoölogy, second year.

Dilks, Eva, Princeton, N. J., 1424 N. 13th St.
A. B. (Wesleyan University, 1892). Latin, second year.

Eberlein, Harold Donaldson, Philadelphia, 4328 Osage Ave.
A. B. (Pennsylvania, 1896). European History, third year.

Edmonds, Franklin Spencer, Philadelphia, 1538 Centennial Ave.
Ph.B. (Pennsylvania, 1893). Graduate student, Pennsylvania, 1893–1894. A. D. White Fellow, Cornell, 1894–1895. Assistant Professor Political Science, Central High School, Philadelphia, 1897 to date. Philosophy, first year.

Enich, Joseph Edmund, Philadelphia, 3346 Walnut St.
Ph. B. (Pennsylvania, 1892). LL. B. (Pennsylvania, 1894). Graduate student, Pennsylvania, 1892–1893. Economics, second year.

Evans, Henry Brown, Dayton, O., Upper Darby.
M. E. (Lehigh, 1893). Instructor in Mathematics and Astronomy, Lehigh, 1894–1895. Instructor in Astronomy (University of Pennsylvania), 1895 to date. Astronomy, fourth year.

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Name.	Residence.	City Address

Fay, Sigourney Webster, Jr., Philadelphia, 3457 Chestnut St.
A. B. (Pennsylvania, 1897). English, second year.

Firmin, George Deazeley, Philadelphia, 5224 Parkside Ave.
B. S. in Chemistry (Pennsylvania, 1884). Professor of Chemistry, North East Manual Training School, Philadelphia. Chemistry, first year.

Galbraith, Thomas Robert, Philadelphia, 2041 E. Susqueh'na Av.
B. S. in E. E. (Pennsylvania, 1897). Instructor in English and History, Central High School, Philadelphia, 1897 to date. English Literature, first year.

Gaston, Caroline Rosalind, Philadelphia, 1613 N. 17th St.
A. B., A. M. (Swarthmore, 1890, 1895). Latin, second year.

Godfrey, Aaron William, New York, N. Y., 700 Chestnut St.
A. B. (New York University, 1896). American History, first year.

Greene, Arthur Maurice, Philadelphia, 408 W. Chelten Ave., Gtn.
B. S., M. E. (Pennsylvania, 1893–1894). Instructor in Mechanical Engineering, 1895 to date. Mathematics, fifth year.

Greene, Cornelia Bonnell, Philadelphia, 279 Tulpehocken St., Gtn.
A. B. (Bryn Mawr, 1897). Zoölogy, first year.

Hansche, Maude Bingham, Oakland, Cal., 3937 Pine St.
Ph. B. (University of California, 1896). English, second year.

Harmon, Mary Patterson, Buffalo, N. Y., 3816 Spruce St.
Ph. B. (Cornell, 1892). Instructor in Psychology, Girls' Normal School, Philadelphia. Psychology, fifth year.

Harris, Henry John, Philadelphia.
A. B. (Haverford, 1895). (Absent on leave at University of Halle, 1897–1898, and at University of Berlin, 1898–1899.) Political Economy, fourth year.

Herrick, Cheesman Abiah, Philadelphia. 4319 Osage Ave.
Ph. B. (Pennsylvania, 1894). Professor of Industrial History and Political Economy, Philadelphia Central High School. Political Economy, fifth year.

Heyl, Paul Renno, Reading, [317 N. 6th St.]
B. S. (Pennsylvania, 1894). Hector Tyndale Fellow in Physics, 1894–1896. Graduate student, Harvard, 1895–1896. Harrison Fellow in Mathematics, 1897–1898. Absent on leave, 1898–1899.

Horter, George Cash, Philadelphia, 2032 Vine St.
A. B. (Pennsylvania, 1894). Crozer Theological Seminary, 1894–1897. Philosophy, fifth year.

Howell, Mary Harrison, Newark, N. J., 3350 Walnut St.
A. B. (Wells College, Aurora, N. Y., 1896). Psychology, second year.

Husik, Isaac, Philadelphia, 616 Morris St.
A. B. (Pennsylvania, 1897). Mathematics and Astronomy, second year.

James, Fleming, Jr., Philadelphia, 905 S. 47th St.
A. B., A. M. (Pennsylvania, 1895, 1896). Harrison Scholar in Classical Languages, 1896–1897. Harrison Fellow, 1897–1898. Greek, third year. Absent on leave, 1898–1899.

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Name.	Residence.	City Address.

James, Joseph Hidy, Washington Ct. House, O., 3931 Baltimore Ave.

B. S. (Buchtel, 1894). Instructor in Physics and Assistant in Chemistry, Buchtel, 1894–1897. Graduate student, Columbia, October, 1897, to February, 1898. Chemistry, second year.

Jamieson, Alexander Fridge, Lawrenceville, N. J.

A. B. (Johns Hopkins, 1880). Latin, third year.

Jefferson, Alice McMichael, Philadelphia, 4062 Irving St.

Certificate in Chemistry, 1897. Chemistry, second year.

Jodocius, Jean Baptiste Albert Camille, Philadelphia, 1701 DeLancey Pl.

Bachélier ès Lettres (Académie de Douai, 1878). Bachélier en Droit, Licencié en Droit (Université de France, 1883, 1884). Ph. D. (Pennsylvania, 1896). Romanic, third year.

Kern, Edward Frank, Knoxville, Tenn., 3418 Sansom St.

B. S. in Chemistry (University of Tennessee, 1897). Graduate student, University of Tennessee, 1897–1898. Chemistry, first year.

Kline, Whorten Albert, Collegeville.

A. B., A. M., B. D. (Ursinus, 1893, 1894, 1896). Instructor in English and Latin, Ursinus, 1893 to date. Latin, second year.

Kunkelman, Merle Rea, Atlantic City, N.J., 4050 Aspen St.

A. B. (Thiel College, 1897). Lutheran Theological Seminary, Mount Airy, 1894–1897. Instructor in Classics and English, Albright College, Myerstown, Pa., 1897–1898. Greek, first year.

Lee, Francis Herbert, Philadelphia, 4721 Winsor Ave.

A. B. (Pennsylvania, 1893). Professor of Classical Languages, Temple College, Philadelphia. Greek, third year.

Lentz, Edwin Warren, Collegeville.

A. B., A. M. (Ursinus, 1895, 1898). Ursinus Theological Seminary, 1894–1897. Dean of Ursinus College Academy, 1897 to date. Sociology, first year.

Levett, Walker Moore, Philadelphia, 1334 N. 21st St.

A. B. (Pennsylvania, 1898). Hebrew, first year.

Lippincott, Walter Crispin, Philadelphia, Dorm. 311, A.

A. B. (Pennsylvania, 1896). Instructor in Latin, Centenary Collegiate Institute, Hackettstown, N. J., 1896–1898. Greek, first year.

Long, Percy Waldron, Philadelphia, 720 N. 6th St.

A. B. (Harvard, 1898). English, first year.

Maguire, John Damien, Philadelphia, 1713 S. 18th St.

A. B. (La Salle College, 1886). S. T. L. (Catholic University of America, 1894). Student, Overbrook Seminary, 1886 to 1891. Post-graduate student, Catholic University of America, 1891–1894. Student of Philology, Bonn, 1894–1895. Johns Hopkins, 1896–1898. Latin, first year.

McCrea, Roswell Cheyney, Norristown, [651 Stanbridge St.]

A. B. (Haverford, 1897). Graduate student, Columbia, 1897–1898. Economics, first year.

McKenney, Randolph Evans Bender, Philadelphia, 331 Poplar St.

B. S. in Biology (Pennsylvania, 1898). Botany, first year.

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Name.	Residence.	City Address.

McKinley, Albert Edward, Philadelphia, 816 N. 11th St.

Ph. B. (Chicago, 1896). Professor of American History, Temple College, Philadelphia. American Constitutional History, third year.

McLean, Francis Herbert, New York, N. Y., [26 Delancy St.]

A. B. (University of California, 1892). Graduate student, Johns Hopkins 1894–1895; Columbia, 1895–1896. Harrison Fellow in Sociology, 1897–1898. Sociology, second year. Absent on leave, 1898–1899.

McNeal, Ira Bennett, Harrisburg, 215 S. 33d St.

A. B. (Dickinson, 1858). Pedagogy, first year.

Miller, Elizabeth Booth, Media.

A. B. (Swarthmore, 1895). English, first year.

Mitchell, Arthur, Philadelphia, 515 Woodland Ter.

B. A. (Yale, 1894). Instructor in English, Syrian Protestant College, Beirout, Syria, 1894–1896. Student, Auburn Theological Seminary, 1896–1897. Mansfield College, Oxford, England, October to December, 1897. English, first year.

Murlin, John Raymond, Minden, Ohio, 1908 Mervine St.

B. S. (Ohio Wesleyan, 1897). Tutor, Ohio Wesleyan, in Zoölogy and Physiology, 1897–1898. Zoölogy, first year.

Musser, Martin Elmer, Mountville, Dorm. 377, K.

A. B. (Franklin and Marshall, 1898). Pedagogy, first year.

Nichols, Marie Louise, Philadelphia, 1210 Spring Garden St.

Certificate in Biology (Pennsylvania, 1893). Instructor in Biology, Girls' Normal School, Philadelphia. Zoölogy, fifth year.

Orr, John Alvin, Cedarville, Ohio, 3621 Locust St.

A. B. (Pennsylvania, 1898). History, first year.

Phillips, Walter Layton, West Chester.

A. B. (Lafayette, 1897). Instructor in Mathematics, West Chester Normal School. Zoölogy, first year.

Pierce, Robert Morris, Philadelphia, 578 E. 60th St., Chicago.

Special student, Massachusetts Institute of Technology, 1887–1889. Harvard, 1892–1894. Würzburg, Germany, 1894–1895. Graduate student (special) 1896–1897. Absent on leave, University of Chicago, September, 1898, to February, 1899. Zoölogy, second year.

Pownall, Susanna Edna, Christiana, 235 N. 18th St.

A. B. (Swarthmore, 1898). Mathematics, first year.

Preston, Helen Gertrude, Philadelphia, 2312 Poplar St.

Ph. B. (Cornell, 1898). European History, first year.

Prettyman, Cornelius William, Salisbury, Md., 3533 Locust St.

A. B. (Dickinson, 1891). Graduate student, Johns Hopkins, 1895–1896. Fellow and Student Assistant in German, Johns Hopkins, 1896–1897. Assistant in German. Germanics, second year.

Quinn, Arthur Hobson, Philadelphia, 720 N. 16th St.

B. S. (Pennsylvania, 1894). Instructor in English, 1895 to date. Absent on leave, University of Munich, 1897–1898. English, fourth year.

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Name.	Residence.	City Address.

Radau, Hugo, New York, N. Y., 4122 Chester Ave.

Graduate, Gymnasium of Nakel, Posen, Germany. Lutheran Concordia Seminary, St. Louis, Mo., 1890–1892. General Theological Seminary, New York, 1893–1896. S. T. B. (General Theological Seminary, 1896). Graduate student, Columbia, 1895–1898. A. M., Ph. D. (Columbia, 1897, 1898). Mayo Fellow, General Theological Seminary, 1896 to date. (Not candidate for a degree.) Assyrian, first year.

Reber, Charles Edgar, Orrstown, Collegeville.

A. B., A. M. (Ursinus, 1892, 1895). Pedagogy D. (Worcester University, 1897). Graduate student, Harvard, 1897–1898. English, first year.

Rex, Percival Taylor, Philadelphia, 4602 Baltimore Ave.

B. S. (Pennsylvania, 1898). American History, first year.

Rife, William Martin, Narberth.

A. B. (Ursinus, 1898). Pedagogy, first year.

Rockwell, George Ward, Akron, Ohio. 3915 Pine St.

B. S. (Buchtel, 1898). Chemistry, first year.

Rohrbach, Jacob Hartman, Philadelphia, 3129 N. 13th St.

A. B. (Lafayette, 1887). Pedagogy, second year.

Rorer, Jonathan Taylor, Jr., Philadelphia, 1919 Gratz St.

A. B. (Colorado College, 1895). Instructor in Mathematics, Philadelphia Central High School. Astronomy, third year.

Rosenbach, Abraham S Wolf, Philadelphia, 1409 N. 18th St.

B. S. (Pennsylvania, 1898). English, first year.

Sargent, Charles Lawrence, Peacedale, R. I., 3412 Sansom St.

B. S. in Agriculture (Rhode Island College of Agriculture and Mechanical Arts, 1894). Second Assistant Chemist, Rhode Island Agricultural Experiment Station, 1894–1897. Graduate student, University of Michigan, 1897–1898. Chemistry, first year.

Schwartz, George Washington, Philadelphia, 1634 West York St.

Ph. B., A. M. (Dickinson, 1883, 1886). Germanics, first year.

Scott, Charles Ernest, Alma, Mich., Dorm. 371, K.

A. B. (Alma College, 1898). American History, first year.

Shaw, Charles Hugh, Delaware, O., 1908 Mervine St.

B. S. (Ohio Wesleyan, 1897). Professor of Biology, Temple College. Botany, second year.

Shimmell, Lewis S Harrisburg.

Graduate of Millersville State Normal School, 1875. Professor of Mathematics and Sciences, Juniata College, 1880–1882. Editor of *The School Gazette*. Author of "The Pennsylvania Citizen," Harrisburg, 1895. American History, third year.

Smith, David Garrett, Philadelphia, 4132 Cambridge St.

A. B. (Hamilton College, 1889). Student, Union Theological Seminary, New York, 1889–1892. English Literature, first year.

Smith, Joseph Russell, Lincoln, Va., George School.

B. S., in Economics (Pennsylvania, 1898). Economics, first year.

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Name. Residence. City Address.

Smith, Merrill Van Giessen, Montclair, N. J., 4012 Chestnut St.
M. E. (Stevens' Institute, 1896). Instructor in Mechanical Engineering, 1897 to date. Physics, second year.

Snowden, Louise Hortense, Philadelphia, 2205 Walnut St.
B. S., in Biology (Pennsylvania, 1898). Zoölogy, first year.

Speaker, Henry Magid, Philadelphia, 1825 Marshall St.
Student, Jewish Theological Seminary, New York, 1887-1891. Special student, Columbia, 1890-1893. Instructor in Hebrew, Talmudics, etc., Jewish Theological Seminary, 1891-1897. Principal of Gratz College, Philadelphia, 1897 to date. Hebrew, first year.

Stofer, James Nelson, Mt. Sterling, Ky., 258 S. 10th St.
B. S. (Centre College, Danville, Ky., 1898). Chemistry, first year.

Taggart, Walter Thomas, Philadelphia, 2011 Fairmount Ave.
B. S., in Chemistry (Pennsylvania, 1896). Instructor in Chemistry, 1896 to date. Chemistry, second year.

Taylor, Thomas Maynard, Oberlin, O., 3603 Sansom St.
B. S. (Oberlin, 1897). Chemistry, second year.

Thompson, Caroline Burling, Philadelphia, Clapier St., Gtn.
B. S., in Biology (Pennsylvania, 1898). Zoölogy, first year.

Turner, Arthur Bertram, Baltimore, Md., 1719 N. 18th St.
A. B. (Johns Hopkins, 1892). Graduate student, Johns Hopkins, 1892-1893 (one term), 1895-1896. Mathematics, first year.

Twitmyer, Edwin Burket, Bethlehem, 3707 Walnut St.
Ph. B. (Lafayette, 1896). Instructor in Psychology. Psychology, third year.

Vlachos, Nicolaos Panagis, Philadelphia, 1116 Ritner St.
Private Schools and Gymnasia in Amsterdam and Haarlem, Holland. University of Amsterdam, 1897-1898. Greek, first year.

Waddington, Jennie Fonda, Salem, N. J., 210 S. 37th St.
B. S., M. S. (Swarthmore, 1889, 1892). Botany, first year.

Waples, Erasmus Burton, Philadelphia, 36 S. 21st St.
A. B., A. M. (Amherst, 1877, 1882). Pedagogy, second year.

Warne, Frank Julian, Parkersburg, W. Va., 206 S. 36th St.
Certificate in Finance and Economy (Pennsylvania, 1896). Political Economy, second year.

Warner, Charles Lamb, Salisbury, Conn., 426 N. 33d St.
A. B. (Williams, 1891). Graduate student, Johns Hopkins, 1897-1898. Greek, first year.

Welt, Ida, New York, N. Y., 4038 Walnut St.
A. B. (Vassar, 1891). Graduate student in Chemistry, University of Geneva, Switzerland, 1891-1896, Ph. D., 1895. Sorbonne, one semester, 1894-1895. Privat docent, 1896-1898. Heidelburg, one semester, 1896-1897. (Not candidate for a degree.) Latin, first year.

Wesselhoeft, Edward Charles, Philadelphia, 4407 Sansom St.
Graduate of the Real-Schule (Johanneum) of Hamburg, Germany, 1877. Instructor in German, 1891 to date. Germanics, second year.

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Name.	Residence.	City Address.

Weygandt, Cornelius, Philadelphia, 229 Upsal St., Gtn.

A. B. (Pennsylvania, 1891). Graduate Student and Assistant in English, 1891–1892. Instructor in English, 1897 to date. English, second year.

Whitaker, Lemuel, Philadelphia, 4269 Viola St.

A. B., A. M. (Columbia, 1881, 1894). English, fifth year.

Willis, Clarence Addison, Philadelphia, 1625 Master St.

M. S. (Stevens Institute, 1889). Instructor in Mechanical Engineering, 1893–1894. Professor of Mathematics, Girard College, 1894 to date.

Willis, John Milton, Williamson School.

B. S. (Swarthmore, 1894). Chemistry, third year.

Worrell, Thomas Worcester, Philadelphia, State Rd., Frankford.

Supervising Principal. American History, sixth year.

Yocum, Albert Duncan, Millville, N. J.

A. B. (Dickinson, 1889). Superintendent of Schools, Millville, N. J. Pedagogy, third year.

AUDITORS.

Bagg, Jessie Sarah, Philadelphia, 1512 Porter St.

Pedagogy, sixth year.

Balderston, Lloyd, Jr., Philadelphia, 140 N. 16th St.

Teacher of Physics, Chemistry and Mathematics, 1885 to date. Physics, third year.

Baldwin, Blanche, Philadelphia, 438 N. 33d St.

Graduate Girls' High and Normal School, 1871. Philosophy, first year.

Burch, Henry Reed, Philadelphia, 1522 Morris St.

Graduate of Central High School, Philadelphia, 1893. American History, third year.

Cooper, Milton Conard, Ashbourne.

Graduate, Millersville (Pa.) Normal School, 1889. Special student, 1895–1897, Pedagogy, third year.

Daltry, Viola West, Philadelphia, 1423 Morris St.

Graduate Girls' Normal School, Philadelphia, 1881. Pedagogy, fourth year.

Fennimore, Beulah Ann, Jenkintown.

Graduate Girls' High School, Philadelphia, 1883. Teachers' Courses in English, 1895–1897. English, first year.

Fox, Hannah Ashley, Philadelphia, 301 S. 8th St.

Graduate High School, West Springfield, Mass. Principal of James Forten Elementary Manual Training School. Pedagogy, first year.

Fugate, Edwin Lindsay, Philadelphia, 1100 Ellsworth St.

Graduate Philadelphia Central High School, 1894. Economics, first year.

Holmes, Mary Smith, Philadelphia, 1331 N. 12th St.

Graduate Girls' Normal School, Philadelphia, 1882. Student Academy of Natural Sciences of Philadelphia. Mineralogy, first year.

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Name.	Residence.	City Address.

Hunsicker, John Rudolph. Downingtown, Pa.
Superintendent of Schools. American History, sixth year.

Johnson, Euphemia, Middletown, Conn., Roosevelt House, 502 S. Front St.
Radcliffe College, 1891–1892. English, first year.

Leof, Morris Voolf, Philadelphia, 495 N. 4th St.
Graduate of High School of Bobroyck, Russia, 1892. M D. (Medico-Chirurgical College, 1898). Psychology, first year.

Lodor, Elizabeth, Philadelphia, 1313 N. 12th St.
Graduate Girls' High School, 1883. Teachers' Courses in English, 1895–1897. English Literature, second year.

Lodor, Mary Louisa, Philadelphia, 1313 N. 12th St.
Public Schools of Philadelphia. Teachers' Courses in English, 1895–1897. English Literature, second year.

Long, William John, Philadelphia, 817 N. Camac St.
Graduate Philadelphia Central High School, 1891. Romanic, first year.

Maguire, Margaret Tilden, Philadelphia, 1713 S. 18th St.
Graduate Girls' Normal School, Philadelphia, 1892. Pedagogy, third year.

Maloy, Charles Raymond, Philadelphia, St. Vincent Sem., Gtn.
Graduate of St. Vincent's Seminary, 1890. Professor of Philosophy, ibid. Philosophy, first year.

Meeteer, Henrietta Josephine, Camden, N. J., [201 State St.]
Teachers' Courses in Latin, 1896–1898. Latin, first year.

Nicolay, Clara Leonora, Philadelphia, 59 High St., Gtn.
Student, Victoria Lyceum, Berlin, Germany, 1882–1885. University College, Nottingham, England, 1889–97. Student, University Correspondence College, Cambridge, England, 1894–1896. L. A. L., University of Saint Andrews, Scotland, 1898. Classics, first year.

Schlauch, William Storb, Philadelphia, 1815 Cayuga St.
Graduate, Millersville (Pa.) State Normal School, 1896. Mathematics, first year.

Shroy, John Lincoln, Philadelphia, 1608 Diamond St.
Graduate Millersville State Normal School, 1887. Supervising Principal. Pedagogy, fourth year.

Ussher, Sydney Lahmire Neville, West Chester.
Associate in Arts, McGill University, 1887. Theological Seminary Reformed Episcopal Church, Philadelphia, 1891–1894. Psychology, second year.

SUMMARY.

Students (Regular)	135
Auditors	23
Total	158

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DEPARTMENT OF LAW.

THIRD-YEAR CLASS.

Name.	Residence.	City Address.
Ambler, Harry Smith, Jr.,	Abington.	
Anderson, Robert Mahlon,	Lansdowne.	
Atkin, John Forman Bodine,	Philadelphia,	3615 Baring St.
Atwood, Samuel Snow,	do.	634 South 48th St.
Barber, Louis Augustin,	Wilkesbarre,	3707 Woodland Ave.
Barnes, Albert Edward,	Philadelphia,	2104 N. 6th St.
Begley, William Joseph,	do.	821 Christian St.
Bernheimer, Leo Gabe, Ph. B. (Pennsylvania),	do.	1804 Franklin St.
Bishop, Jacob Van Sciver,	Beverly, N. J.,	711 Spruce St.
Blanchard, Edmund, A. B. (Haverford),	Bellefonte,	Overbrook.
Bowman, Carl Miner, A. B. (Princeton),	Philadelphia,	1814 N. Broad St.
Boylan, Thomas,	do.	2411 Carpenter St.
Boyle, Frank Patrick,	Hazleton,	3254 Chestnut St.
Brown, Clayton Lippincott,	Norristown,	238 S. 7th St.
Buckley, George Washington,	Philadelphia,	3950 Market St.
Busser, Ralph Cox,	do.	4149 W. Girard Ave.
Caraher, James Dowd,	do.	1613 N. 18th St.
Chapman, William Edwards, B. A. (Pennsylvania),	do.	Upsal, Germantown.
Chesney, Morton Adolph,	do.	512 Lorain St.
Clark, Percy Hamilton, A. B. (Harvard),	do.	School Lane, Gtn.
Cohen, Bert,	Erie,	Dorm. 149, O.
Daley, Patrick Joseph,	Philadelphia,	2454 Colorado St.
Davison, William Mercerean, Jr.,	do.	3601 Wissahickon Ave.
Dickey, John, Jr.,	do.	2104 N. Broad St.
Dickey, Norris Copper,	do.	2120 Gratz St.
Dorey, Daniel Stiltz,	do.	1716 Spring Garden St.
Farnum, Charles Augustus,	Norristown,	550 Drexel Bldg.
Farquhar, Otto Edward,	Pottsville,	Dorm. 313, B.
Fell, David Newlin, Jr., B. S. (Pennsylvania),	Philadelphia,	1534 N. Broad St.
Finley, Joseph Kroberger,	do.	Crescentville.
Frazier, Bertram Graeme,	do.	3812 Spruce St.
Frazier, John Wesley, Jr.,	do.	3812 Spruce St.
Fridenberg, Louis Mone,	do.	2122 Spring Garden St.
Geuther, Henry Walter,	do.	2441 N. 2d St.
Gillinder, Frederick Robert,	do.	1509 Oxford St.
Goodwin, Fred De Witt,	do.	228 N. 53d St.
Gorman, Leo Joseph,	do.	1720 N. 18th St.
Greenwood, Walter E	Coatesville,	3471 Sansom St.

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Name.	Residence.	City Address.
Grote, Hermann Ludwig,	Pittsburg,	Dorm. 327, C.
Gumbes, Frank Macomb,	Oaks,	701 Drexel Bldg.
Hamlin, Paul Clement,	Philadelphia,	3502 Hamilton St.
Heckler, Howard Erb,	do.	238 N. 13th St.
Heckscher, Stevens, A. B. (Harvard),	do.	260 S. 18th St.
Heilman, Harry Anderson,	Kittanning,	3254 Chestnut St.
Hinckley, John Chambers, A. B. (Pennsylvania),	Philadelphia,	127 N. 19th St.
Hodgson, Frank Kirby,	do.	2206 Frankford Ave.
Hood, Frank Perry,	do.	2936 N. 12th St.
Hottenstein, Marcus Stephen, A. B. (Muhlenberg),	Allentown,	809 Spruce St.
Jefferies, John Howard,	Philadelphia,	800 S. 48th St.
Johnson, Archibald Todd, A. B. (Princeton),	Jerseytown,	701 Drexel Bldg.
Johnson, Howard Cooper, B. L. (Swarthmore),	Langhorne,	4043 Walnut St.
Johnston, William Craig,	Jerseytown,	665 N. 12th St.
Justice, George Lewis, B. S. (Pennsylvania),	Philadelphia,	1211 Walnut St.
Killmer, Alfred Gedney, A. B. (Princeton),	do.	833 N. 22d St.
Klopp, Peter Paul, M. D. (Jefferson),	do.	2963 N. 6th St.
Kohn, James,	Carmel, N. J.,	1328 S. Reese St.
Kramer, Albert Ludlow,	Philadelphia,	1709 Spg. Garden St.
Kuschke, Charles,	Plymouth,	716 Pine St.
Lank, Edgar William,	Milton, Del.,	711 Spruce St.
Larkin, Michael Joseph, A. B. (La Salle),	Philadelphia,	1651 N. 7th St.
Lessig, William Brooke,	Pottstown,	Dorm. 206, B.
McCarron, Francis Aloysius, A. B. (La Salle),	Philadelphia,	1111 Christian St.
McCoy, James Forney,	Lancaster,	3617 Locust St.
McKinley, Harry Slocum,	Pittsburg,	Dorm. 212, C.
McNamara, Frank Jerome,	Bradford,	623 Spruce St.
McNeal, James Hector,	Philadelphia,	417 S. 43d St.
McOwen, Lawrence Francis,	Bristol.	
Margolin, Abraham Joseph,	Philadelphia,	534 S. 4th St.
Melvin, Thomas Jefferson, Jr.,	Bradford,	3265 Sansom St.
Miller, Jacob Albert, A. B. (La Salle),	Philadelphia,	2114 Hancock St.
Miller, Melchin Walter,	do.	1711 Summer St.
Mingey, Edward Joseph, LL. B., Litt. B. (Notre Dame),	do.	1205 N. 52d St.
Moore, Henry Wilmer, B. S. (Pennsylvania),	Bridgwater,	1622 Green St.
Moorhead, Rome Johnston,	McDonald,	223 S. 33d St.
Morris, Robert,	Philadelphia,	4240 Parkside Ave.

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Name.	Residence.	City Address.
Morris, Roland Sletor, A. B. (Princeton),	Philadelphia,	241 S. 21st St.
O'Brien, Edward Michael,	do.	728 S. 19th St.
Off, Frank Bower,	do.	255 S. 20th St.
Oglesby, William Vastine, A. B. (Princeton),	Danville,	337 S. 5th St.
Pearsall, William Bertice, B. S. (Grove City),	Grove City,	Dorm. 216, D.
Quigley, Joseph Barwis,	Philadelphia,	857 E. Thompson St.
Rabe, Frank Lloyd,	do.	1922 Judson Place.
Randall, Samuel Josiah,	do.	Chestnut Hill.
Rank, Charles William, A.B. (Wittenberg),	Williamstown,	120 S. 33d St.
Rearick, Bertram Delroy,	Philadelphia,	112 Rittenhouse St. Gtn.
Roberts, Algernon Brooke, B. S. (Princeton),	Bala,	701 Drexel Bldg.
Savidge, Robert James,	Philadelphia,	1520 Centennial Ave
Schewe, Adolph	do.	1525 N. 11th St.
Skeen, William James,	do.	1726 Sansom St.
Slattery, Joseph Austin,	Hazleton,	508 Spruce St.
Snyder, Wellington Jacob, A. M. (Muhlenberg); A. B. (Pennsylvania),	Philadelphia,	707 Walnut St.
Spalding, Henry, B. A. (Yale),	do.	1336 Spruce St.
Spang, George Theodore, B. A. (Muhlenberg),	Lebanon,	215 S. 10th St.
Stearns, Edwin Ira,	Wilkesbarre,	1001 Chestnut St.
Stewart, Walter Douglas,	Philadelphia,	2104 Mt. Vernon St.
Stiles, Louis Mulford,	do.	1304 N. 29th St.
Stillwagen, Frederick Haines, A. B. (Harvard),	Allentown,	305 S. 11th St.
Stirling, Harry L,	Philadelphia,	54th and Media Sts.
Sullivan, John James, A. B. (St. Josephs),	do.	1910 Walnut St.
Sundheim, Joseph,	do.	1828 N. 17th St.
Swab, Daniel Cooper,	Middlesborough, Ky.	4232 Westminster Ave.
Thomas, Allen Curry, B. S. A. M. (Haverford),	Philadelphia,	2830 Frankford Ave.
VanDeusen, Henry Reed, A. B. (Wesleyan),	Williamsport,	3346 Walnut St.
Walker, Samuel,	Butler,	3537 Locust St.
Way, Marshall Warren, B. S. (Haverford),	West Chester.	
Weatherby, John Howard, B. S. (Pennsylvania),	Camden, N. J.,	[404 Pearl St.]
Weil, Arthur Edward, A. B. (Pennsylvania),	Philadelphia,	1720 Pine St.
Whitaker, Samuel Adams,	Phoenixville.	3717 Spruce St.

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Name.	Residence.	City Address.
White, Thomas Raeburn, B. S. (Earlham),	Philadelphia,	187 Maplewood Ave., Gtn.
Williams, Thomas Stotesbury, A. B. (Harvard),	do.	309 S. 15th St.
Winstanley, Samuel Edgar Mather,	do.	5314 Germantown Av.
Wood, Walter Keeley,	do.	3942 Brown St.
Woodward, Arthur Percival,	do.	2408 N. Broad St.

SECOND-YEAR CLASS.

Adams, Thomas Rawlins,	Philadelphia,	Manayunk.
Allen, William Stephen, Jr.,	do.	2411 Turner St.
Allison, William Andrews,	do.	2311 Thompson St.
Bates, William Welcome,	do.	2027 N. College Ave.
Bauer, Henry Wood,	do.	1630 Allegheny Ave.
Baxter, Irving Knott,	Utica, N. Y.,	3701 Woodland Ave.
Bedford, Paul, B. S. (Princeton),	Wilkesbarre,	1230 Spruce St.
Belknap, Henry Heston,	Philadelphia,	1128 Spruce St.
Bennett, Reuben Nelson, A. B. (Wesleyan),	Wilkesbarre,	1230 Spruce St.
Borm, Louis Albert,	Philadelphia,	212 S. 42d St.
Bowen, Edward Alford,	do.	2026 Park Ave.
Brenner, Norman Welrose,	do.	1609 Susquehanna Av.
Buckman, Clarence Jay,	Langhorne,	512 Bullitt Bldg.
Bull, George Rosencrance,	Milford,	3606 Locust St.
Cahall, Thomas, B. L. (Swarthmore),	Frederica, Del.,	1901 Chestnut St.
Chase, William Thomas,	Philadelphia,	226 W. Logan Sq.
Colahan, John Barron, 3d,	do.	4004 Pine St.
Collner, Lewis,	Clarion,	Dorm. 329, C.
Connolly, Paul Vincent Michael,	Philadelphia,	1232 N. 18th St.
Crane, William Ward,	Morristown, N. J.,	Dorm. 305, A.
Creth-Marsh, John,	Philadelphia,	1923 N. 18th St.
Davis, William Potter, Jr., A. B. (Princeton),	Milleville, N. J.,	818 Witherspoon Bldg.
Denniston, Paul Hudnut,	Beverly, N. J.,	3617 Locust St.
Devereux, James Ashton, A. B. (Georgetown),	Philadelphia,	1911 Vine St.
Dickson, Alexander King, A. B. (Pennsylvania),	do.	3705 Walnut St.
Donehoo, Robert Porter,	do.	638 N. 32d St.
Downs, Charles Brown,	Dover, Del.,	4328 Sansom St.
Drumm, Philip Leo,	Drums,	249 S. 15th St.
Espen, Herman,	Philadelphia,	2309 Green St.
Fahy, Walter Thomas, A. B. (La Salle),	do.	1609 N. 10th St.
Fineman, Samuel Samson,	do.	818 S. 4th St.
Flavell, Thomas,	do.	5438 Wayne Ave., Gtn.

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Name.	Residence.	City Address.
Foulkrod, John Jacob, Jr., Ph. B. (Pennsylvania),	Philadelphia,	479 Lyceum Av , Rox.
Francis, John Spencer,	do.	4037 Chestnut St.
Garlic, Simon,	do.	869 N. 6th St.
Garrett, Albert Nicholson,	Swarthmore.	
Gaskill, Thomas Logan, A. B. (Princeton),	Mt. Holly, N. J.	
Gerhard, Albert Pepper,	Overbrook.	
Goodfriend, Louis,	Philadelphia,	1910 South St.
Goodman, Samuel, Jr., A. B. (Pennsylvania),	do.	Chestnut Hill.
Groome, Daingerfield Moseley,	do.	4302 Osage Ave.
Hayward, Joseph Reppard,	do.	2047 Wallace St.
Heiligman, Otto Robert,	do.	770 S. Broad St.
Heulings, Joseph Chew,	Moorestown, N.J.,	701 Drexel Bdg.
Horner, William Montgomery,	Philadelphia,	1422 Master St.
Howson, Charles Henry, A. B. (Haverford),	Wayne.	119 S. 4th St.
Hunsicker, John Quincy, Jr., B. S. (Haverford),	Philadelphia,	3523 N. 22d St.
Israeli, Samuel Michael, Ph. B. (Yale),	Hartford, Conn.,	612 S. 10th St.
Jester, William Burton, B. S. (Delaware),	Delaware City, Del.	524 Spruce St.
Keating, Thomas Edward,	Oil City,	Dorm. 208.
Kelly, William Eldridge, LL. B. (Georgetown),	Philadelphia,	2739 Jefferson St.
Lallou, Harry Eugene, Jr.,	do.	1731 Diamond St.
Levi, Reuben,	do.	881 N. 6th St.
Lineaweaver, James Israel, A. B. (Yale),	do.	1907 Walnut St.
Lipschutz, Ephraim,	do.	1419 Diamond St.
Long, Howard Marshall, Ph. B. (Pennsylvania),	Lewes, Del.,	1708 N. 16th St.
Lummis, Henry Powell, Jr.,	Philadelphia,	4515 Chester Ave.
McCaughey, Harry Moses,	do.	1766 N. Front St.
McCullough, Michael Francis, Jr,	do.	406 S. 21st St.
McDevitt, John Joseph, Jr.,	do.	523 N. 4th St.
McKeehan, Charles Louis, A. B. (Pennsylvania),	do.	2116 Chestnut St.
MacAllister, Alexander Barry,	do.	2249 Fitzwater St.
Maguire, Aloysius Joseph, A. B. (La Salle),	do.	1424 N. 16th St.
Maguire, Francis Lyttleton,	do.	5104 Arch St.
Maier, Paul David Irvin, A. B. (Haverford),	do.	2242 N. Broad St.
Miller, John,	Media,	334 S. 15th St.

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Name.	Residence.	City Address.
Moore, William Wesley,	Philadelphia,	2318 Howard St.
Morgan, Fisher Corlies, A. B. (Pennsylvania),	do.	157 W. Chelten Ave., Gtn.
Muhly, George Conrad, Ph.B. (Pennsylvania),	do.	1627 S. 6th St.
Munhall, Adinah Castor,	Allegheny City,	Dorm. 324, C.
O'Brien, George Francis,	Pittston,	508 Spruce St.
Oliensis, Ben-Zion David,	Philadelphia,	319 Fitzwater St.
Orth, Frank Jacob,	Pittsburg,	326 S. 12th St.
Peirce, Thomas Olmstead,	Philadelphia,	3323 Powelton Ave.
Perkins, Herbert Eugene, A. B. (Washington),	do.	52 W. Tulpehocken St., Gtn.
Powers, Martin James, A. B. (La Salle),	do.	1204 N. Broad St.
Pyle, Elmer Amos,	do.	1216 Locust St.
Raken, Simon Charles,	do.	1202 South St.
Rapaport, Charles Morris,	do.	729 Wharton St.
Register, Julian,	do.	324 S. 5th St.
Rosengarten, Samuel Richardson, B. S. (Pennsylvania),	do.	1905 Walnut St.
Rosenwey, Paul Marcel,	do.	1705 S. Broad St.
Schaeffer, John Scott, A. B., A.M. (Thiel),	Kittanning,	523 N. 7th St.
Schaffer, Henry Becker, Jr.,	Philadelphia,	732 N. 20th St.
Schmidt, Oscar,	Indianapolis, Ind.,	3913 Woodland Ave.
Seymour, Robert Gillin, Jr., A. B. (Colgate),	Philadelphia,	220 S. 44th St.
Sibble, John Edwin,	Warren,	249 S. 15th St.
Stanton, Edwin McMaster, A. B. (Princeton),	Philadelphia,	1218 Locust St.
Steffen, Peter Bernard, A. B. (Grove City),	Natrona,	1320 Green St.
Stewart, James,	Philadelphia,	Hoffnagle St, Fox Chase.
Taggart, Claude Terry, Ph. B. (Pennsylvania),	do.	3037 Berks St.
Townsend, Ralph Milbourne, A. B. (Harvard),	do.	2018 Locust St.
Voegtly, Jacob John, B. S. (Wash. and Jeff.),	Allegheny,	3254 Chestnut St.
Walker, James Andrew,	Philadelphia,	1508 Christian St.
Wanner, Charles Rosenberger, A. B. (Lafayette),	Kutztown,	1438 S. Penn Sq
Willis, Percival Ward, Ph. B. (California),	Philadelphia,	1936 N. 24th St.
Wolcott, Wilfred Bonsieur,	Camden, N. J.,	[737 Walnut St.]
Wolverton, Charles Anderson,	do.	[601 State St.]
Woolford, Samuel Whitefield, Jr.,	Woolford, Md.,	1723 Sydenham St.
Young, Sydney, B. S. (Pennsylvania),	Philadelphia,	Upsal, Germantown.

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FIRST-YEAR CLASS.

Name.	Residence.	City Address.
Ammon, John Martin,	Lancaster,	623 Spruce St.
Archbald, Robert Wodrow, Jr., B. A. (Yale),	Scranton,	102 S. 36th St.
Bedford, Charles Alford,	Philadelphia,	3925 Powelton Ave.
Beitler, Harold Borneman,	do.	1615 Poplar St.
Bertolet, Walter Benjamin,	do.	2112 Columbia Ave.
Biklé, Henry Wolf, A. B. (Pennsylvania College),	Gettysburg,	216 W. Logan Sq.
Blakely, Walter Cooper,	Philadelphia,	877 N. 24th St.
Bowles, Herbert Boyer,	do.	4027 Spruce St.
Brady, John Ward,	Wilmington, Del.,	[413 E. 6th St.]
Brevillier, Edwin Henry,	Erie,	Dorm. 210, C.
Brinton, Jasper Yeates, A. B., (Pennsylvania,)	Philadelphia,	1423 Spruce St.
Broderson, Otto Charles,	do.	1414 Snyder Ave.
Cantlin, John Robinson,	do.	812 N. 41st St.
Cavin, Samuel Herbert,	do.	1933 Wallace St.
Conlen, William James,	do.	2320 Memphis St.
Connolly, Francis Xavier, B. A. (St. Joseph's),	do.	1232 N. 18th St.
Crozer, George Knowles, Jr., A. B. (Princeton),	Upland,	"The Stenton."
Dickey, Irvine Rutherford, A. B. (Princeton),	Oxford.	
Dohan, James Mark, B. A. (St. Joseph's),	Philadelphia,	217 N. 20th St.
Dunn, Thomas Francis,	Mahanoy City,	3260 Sansom St.
Emhardt, Edwin Chase,	Philadelphia,	32 Harvey St., Gtn.
Ferguson, Frank Maybin,	do.	1805 N. Broad St.
Fouse, Harrie Hause, B. S. (Swarthmore),	do.	3613 Baring St.
Gilpin, Oliver William, A. B. (Harvard),	Kittanning,	225 S. Broad St.
Guckes, Jacob Rech,	Philadelphia,	975 Franklin St.
Hallahan, John William,	do.	2138 Mt. Vernon.
Hawks, Charles Kenyon,	do.	1102 N. 40th St.
Hess, Arthur Rosenthall,	do.	1326 Marshall St.
Higgins, Myles,	do.	1014 N. 6th St.
Hochstadter, Harry Clay,	do.	1507 N. 10th St.
Hodge, Henry Baring,	do.	334 S. 13th St.
Hoffman, Jacob,	do.	718 Annin St.
Humphreys, Harry Richard,	Camden, N. J.,	[413 Cooper St.]
Hurst, John William,	Fall River, Mass.,	3960 Pine St.
Huston, Joseph Hollingsworth, B. S. (Pennsylvania),	Philadelphia,	1641 Diamond St.
Hutchins, Edward Tyson,	do.	2124 Germantown Av.
Hyndman, Harry Tuck,	Wilkesbarre,	123 S. 34th St.
Irwin, Walter Wayne,	Pittsburg,	Dorm. 366, I.
Janney, Walter Coggeshall, A. B. (Haverford),	Philadelphia,	117 S. 19th St.

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Name.	Residence.	City Address.
Jenks, Robert Darrah, A. B. (Harvard),	Philadelphia,	920 Clinton St.
Johnson, Lester Bicknell,	do.	2121 Columbia Ave.
Jones, John Evan,	Everett,	1001 Spruce St.
Jordan, Thomas Carrick,	Philadelphia,	Morris and Logan Sts., Gtn.
Kratz, Joseph Stancliffe, A. B., A. M. (Pennsylvania),	Norristown.	
Kriebel, Elias Wilbur, A. B. (Pennsylvania),	North Wales,	Dorm. 382, M.
Langstroth, Charles Souder, B. S. (Pennsylvania),	Philadelphia,	4109 Walnut St.
Langstroth, James Heidel, B. A. (Pennsylvania),	do.	4109 Walnut St.
Lister, Charles Clayton, Jr.,	do.	Dorm. 113, D.
Lloyd, Stacy Barcroft, A. B. (Princeton,)	do.	329 S. 17th St.
Long, Richard C,	Pittsburg,	Dorm. 204, A.
McAnany, Hugh Francis,	Philadelphia,	1511 S. Broad St.
McCullagh, Alexander Kerr,	do.	231 S. 44th St.
McGeogh, Ignatius Joseph, B. A. (St. Joseph's),	do.	1719 Jefferson St.
McGrath, Francis Sims, B. S. (Pennsylvania),	do.	129 Cliveden Av., Gtn.
Madden, Newton Byron, A. B. (Allegheny),	Altoona,	623 Spruce St.
Matthews, Francis Thomas, A. B. (La Salle),	Philadelphia,	2608 E. Lehigh Ave.
Metzger, Bruce Ambrose, A. B. (Snsquehanna),	Watsontown,	4338 Pine St.
Morgan, Charles Eldridge, 3d, A. B. (Harvard),	Philadelphia,	Church Lane, Gtn.
Murray, Hazard Alexander,	Clearfield,	3346 Walnut St.
Myers, Ira Stover, B. S. (Lafayette),	Pipersville,	5438 Morris St., Gtn.
O'Connell, Daniel,	Philadelphia,	5345 Germantown Ave.
Overfield, Peter David,	Meshoppen,	Dorm. 119, E.
Purvis, William Bailey, A. B. (Westminster),	Butler,	3254 Chestnut St.
Ralston, John Magill,	Pittsburg,	637 N. 42d St.
Reynolds, Lloyd Gilson, B. L. (Trinity),	Erie,	715 Pine St.
Rosengarten, Albert Huntsman, B. S. (Princeton),	Philadelphia,	1826 Spruce St.
Schultze, William Augustus Rex, A.B., A. M. (Moravian,)	Bethlehem,	1425 Poplar St.
Schwartz, John George,	Hazleton,	252 N. 12th St.
Seymour, Edmund Bayly, Jr., A. B. (Princeton),	Philadelphia,	Johnson and Greene Sts., Germantown.

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Name.	Residence.	City Address.
Shaffer, Newton Melman, Jr.,	New York City, N. Y.,	Dorm. 225, F.
Smith, Latimer Painter, A. B. (Princeton),	Philadelphia,	3703 Locust St.
Snyder, George Fletcher,	Auburn, N. Y.,	3604 Walnut St.
Stauffer, John Dechant, A.B. (Franklin & Marshall),	Boyertown,	Dorm. 397, O.
Stein, George Harbaugh, A. B. (Franklin & Marshall),	Annville,	413 S. 9th St.
Stilz, Wilson, B. S. (Pennsylvania),	Philadelphia,	1737 Wallace St.
Swartley, Francis Kile, B. S. (Pennsylvania),	North Wales,	Dorm. 387, M.
Taylor, Robert Joseph Wright,	Philadelphia,	Bustleton.
Thomas, Walter, A. B. (Princeton),	Milford, Del.,	726 Mifflin St.
Torpey, John Joseph, Jr., B. A. (La Salle),	Philadelphia,	York Road and Hunting Park Ave.
Troutman, Albert Charles, B. S. (Wash. and Jeff.),	Butler,	3254 Chestnut St.
Ulrich, Adam Stewart, B. S. (Lebanon Valley),	Annville,	240 S. 10th St.
Van Dusen, Lewis Harlow, A. B. (Princeton),	Philadelphia,	240 W. Logan Sq.
Veasey, Milton Leroy, A. B. (Western Maryland),	Pocomoke City, Md.,	116 S. 19th St.
Veile, Xavier,	Easton,	3913 Woodland Ave.
Wallace, Ralph, Sproul, A. B. (Wash. and Jeff.),	Oakdale,	3254 Chestnut St.
Warwick, Charles Franklin, Jr.,	Philadelphia,	1925 Spg. Garden St.
Watt, George William,	do.	1812 N. Broad St.
Wilson, Walter Winfield, B. S. (Princeton),	Clarion,	3419 Walnut St.
Wolff, Oliver Miller,	Reading,	252 S. 9th St.
Womrath, Fredrick Herbert,	Pottsville,	Dorm. 339, D.
Yohn, William Preston, B. A. (Franklin and Marshall),	Mountville,	[Spring City.]

SPECIAL STUDENTS.

Baird, William James, A. B. (Princeton),	Darby.	
Kopf, Martin Baden,	Wilmington, Del.,	9th and Franklin Sts.
Noonan, John Henry,	Bethel, Vt.,	1520 N. 15th St.
Roberts, William Henry, Jr., A. B. (Princeton),	Trenton, N. J.,	1319 Walnut St.
Watson, William Newbold, M. D. (Medico-Chirurgical),	Philadelphia,	4110 Parkside Ave.
Young, Bertram Isaac de,	do.	1943 Park Ave.

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PARTIAL STUDENTS.

Name.	Residence.	City Address.
Gallagher, Edward Peter,	Coal Dale,	2356 N. Broad St.
Heist, George,	Glenside,	1846 Willington St.
Knappe, Emil Carl,	Springfield, Mass.,	4043 Spg. Garden St.
Littlefield, Paul Goddard,	Philadelphia,	W. Walnut Lane, Gtn.
McCaffrey, Joseph John,	do.	1711 N. 4th St.
Megary, Joseph,	do.	717 N. 44th St.
Montgomery, William Woodrow, Jr.,	Radnor,	209 Franklin St.
Mullen, Thomas Aloysius,	Philadelphia,	1212 S. 31st St.
Potts, Howard Cameron,	do.	425 E. Woodlawn Ave., Gtn.
Redheffer, William Henry, Jr.,	do.	2325 Oxford St.

GRADUATE STUDENT.

Robinson, Louis Barclay, LL. B. (Pennsylvania),	Philadelphia,	2039 N. 63d St.

SUMMARY.

Students of the Third-year Class	114
Students of the Second-year Class	99
Students of the First-year Class	91
Special Students	5
Partial Students	10
Graduate Student	1
Total	320

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DEPARTMENT OF MEDICINE.

FOURTH-YEAR CLASS.

Name.	Residence.	City Address.
Anderson, Guy Roland, B.S. (Dickinson Seminary),	Williamsport,	3346 Walnut St.
Anderson, Joseph Wilson,	Norristown,	733 Corinthian Ave.
Austin, William Sidney, A. B. (Tennessee),	Brownsville, Tenn.,	3422 Sansom St.
Barnhart, Henry Byers,	Greensburg,	Dorm. 445, M.
Barnhill, Edwin Maurice,	New Philadelphia, Ohio,	3713 Woodland Ave.
Barranco, Marco Antonio,	Tabasco, Mex.,	4311 Walnut St.
Barry, Chester LeRoy,	Oxford,	3249 Sansom St.
Behrend, Moses,	Philadelphia,	1324 N. 6th St.
Blackford, Robert Alexander, A. B. (Washington and Jefferson),	Martin's Ferry, Ohio,	3338 Lancaster Ave.
Bleick, William David,	Newark, N. J.,	3412 Sansom St.
Boardman, Albertus Kellogg,	Sheffield, Mass.,	3439 Chestnut St.
Bock, Franklin William,	Dansville, N. Y.,	23 S. 34th St.
Bogart, Arthur Emerson,	Philadelphia,	3249 Sansom St.
Bolan, Herbert Aloysius, A. B. (Georgetown),	do.	869 N. 41st St.
Borger, Otto Peter,	do.	704 S. 4th St.
Boyd, Harry Wilson, A. B. (Washington and Jefferson),	Pittsburg,	3923 Baltimore Ave.
Bradeen, Fred Barton,	Greenville, Me.,	Dorm. 139, L.
Breed, Maurice Edwards,	Pittsburg,	Dorm. 238, J.
Brick, Benjamin Kain, B. S. (Bucknell),	Marlton, N. J.,	117 S. 34th St.
Brown, Samuel Horton, Jr.,	Philadelphia,	744 N. 41st St.
Browse, Henry Nicholas,	GrapeIsland, W. Va.,	Dorm. 391, O.
Burdon, Reginald McIntosh,	Green Bay, Wis.,	4005 Chestnut St.
Burns, Louis Joseph Ignatius,	Philadelphia,	1928 Christian St.
Busch, John William Augustus,	do.	2208 N. 19th St.
Butz, Jacob Treichler,	Allentown,	Dorm. 207, B.
Byrne, Thomas Joseph,	Philadelphia,	2200 Tasker St.
Caldwell, John Dean,	Hollidaysburg,	Dorm. 325, C.
Carnett, John Berton,	Ansonia,	Dorm. 219, E.
Cassidy, Paul Bernard,	Wilkesbarre,	214 S. 37th St.
Chambers, James Quarles, A.B. (Washington and Lee),	Lexington, Mo.,	Dorm. 445, M.
Clemens, Francis, Jr.,	Philadelphia,	2028 Madison Ave.
Coffey, Titian James, M. D., (Univ. So. Calif.)	Peoria, Ill.,	3645 Locust St.
Cooley, Martin Jennings, Jr.,	Savannah, Ga.,	3457 Lancaster Ave.
Cottle, Louis Albert,	Boston, Mass.,	Dorm. 396, O.
Crawford, James Rea, A. B. (Washington and Jefferson),	Philadelphia,	6 S. 38th St.

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Name.	Residence.	City Address.
Cregar, Peter Bodine, B. S. (Bucknell),	Annandale, N. J.,	3621 Locust St.
Crothers, Lewis Haines,	Upland.	
Curtis, Frederic Chester,	West Stockbridge, Mass.,	Dorm. 427, F.
Cutts, William Bryant, A. B. (Bates),	North Anson, Me.,	767 N. 40th St.
Dandy, George Brown, Jr.,	Omaha, Neb.,	3445 Walnut St.
Darlington, Emlen Painter,	West Chester,	3614 Hamilton St.
Davis, Edward Lowndes,	Danville,	3423 Walnut St.
Davis, Harry Thomas,	St. Clair,	741 N. 41st St.
Davies, William Rowland,	Wyoming,	3262 Sansom St.
Davison, Robert E,	Ebensburg,	3713 Woodland Ave.
De Bruler, James Presbury,	Evansville, Ind.,	120 S. 33d St.
De Loffre, Samuel Middleton, B. A. (Ohio State),	Fort Sam Houston, Texas,	Dorm. 450, M.
De Valin, Hugh,	Washington, D.C.,	3738 Locust St.
Dengler, Clarence Keller,	Pottsville,	Dorm. 450, M.
Dickinson, James Edward,	Steelton,	3422 Sansom St.
Donaldson, Albert Barnes,	Philadelphia,	1013 Farragut Terrace
Doran, John,	do.	2043 Christian St.
Drein, William Clifton,	Wilmington, Del.,	Dorm. 242 L.
Dunning, Charles Murray,	Trenton, N. J.,	12 S. 40th St.
Dye, Frank Hazzard,	Philadelphia,	1216 Brown St.
Eisenberg, John Lawrence,	Norristown,	[221 W. Main St.]
Elwell, Alfred Maull,	Bridgeton, N. J.,	3921 Baltimore Ave.
Ennis, Joseph,	Burkittsville, Md.,	124 S. 40th St.
Enright, James Geary,	Freehold, N. J.,	Dorm. 363, I.
Evans, George Oliver,	Pittsburg,	Dorm. 218, E.
Evans, Joseph Spragg, Jr., A. B. (Haverford),	West Chester,	3625 Locust St.
Evans, Thomas Horace,	Philadelphia,	2041 Wallace St.
Fraley, Frederick, Jr., A. B. (Pennsylvania),	do.	Dorm. 230, H.
Farquhar, Raymond Rogers,	Norfolk, Va.,	Dorm. 302, A.
Fegley, Theodore Charles,	Orwigsburgh,	202 S. 37th St.
Feidt, Wilson Wellington,	Millersburgh,	3412 Sansom St.
Fisher, William Endy,	Reading,	3223 Sansom St.
Fithian, George Washington,	Bridgeton, N. J.,	4047 Locust St.
Flynn, John Cajetan,	Salem, N. J.,	29 N. 36th St.
Fly, Robert Judson,	Philadelphia,	3719 Spruce St.
Foster, George Benjamin,	Lynn, Mass.,	3913 Woodland Ave.
Fox, William Wellington,	Philadelphia,	2745 N. 11th St.
Franklin, Paul Hutchins,	Portsmouth, Ohio,	3706 Spruce St.
Freeman, Samuel,	Trenton, N. J.,	[448 S. Broad St.]
Gandy, Raymond Reeves,	Philadelphia,	2332 N. 16th St.
Gay, Clarence Bertram,	North Reading, Mass.,	38 N. 36th St.
Gay, William Madison,	Windsor, Vt.,	3422 Sansom St.
Geisler, Howard Dickes,	Philadelphia,	703 W. Cumberland St.

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Name.	Residence.	City Address.
Gengenbach, Frank Paul,	Philadelphia,	1021 Race St.
Gibbons, John Myles,	Scranton,	3604 Walnut St.
Gilmour, Samuel Bayard,	Philipsburg,	3433 Walnut St.
Gildersleve, George Henry, Jr.,	Camden, Del.,	3738 Locust St.
Githens, Thomas Stotesbury,	Philadelphia,	1512 Pine St.
Glosser, Herbert Hartman, B. S. (Penna. State),	Paoli,	3223 Sansom St.
Goldsmith, Milton,	Connellsville,	3706 Spruce St.
Gorham, Fordyce Clark,	Coudersport,	3447 Lancaster Ave.
Graham, William Alexander, A. B. (North Carolina),	Hillsboro, N. C.,	3313 Walnut St.
Grant, Walter Scott, A. B. (Middlebury),	Cuyahoga Falls, Ohio,	3428 Sansom St.
Green, George Dorsey, B. S. (Penna. State),	Waddles,	3953 Baltimore Ave.
Greer, Robert Bruce, B. S. (Penna. State),	Butler,	3537 Locust St.
Groh, John Brighthill,	Lickdale,	3322 Woodland Ave.
Grushlaw, Israel,	Philadelphia,	718 S. 5th St.
Gunn, Frank,	do.	1428 W. Alleghany Av.
Halloran, Paul Stacy,	Ft. Niobrara, Neb.,	3604 Walnut St.
Harbert, George Eugene,	Mt. Holly, N. J.,	3709 Woodland Ave.
Hedding, Benjamin Edgar, B. S. (Dickinson Sem.),	Morrisdale Mines,	3346 Walnut St.
Heller, Samuel Hess,	Binkley,	107 S. 34th St.
High, William Beidler, A. M. (Princeton),	Shillington,	107 S. 34th St.
Hoagland, Henry Williamson,	Hazleton,	3604 Walnut St.
Hodge, Edward Blanchard, Jr., A. B. (Princeton),	Philadelphia,	319 S. 41st St.
Holbrook, Bradbury, A.B. (Harvard),	Salem, Mass.,	Dorm. 442, K.
Hollister, Frederic Purdy,	Wilkesbarre,	3941 Baltimore Ave.
Hoover, Percy Daniel, B.S. (Gettysburg),	Waynesboro,	Dorm. 146, N.
Howell, William Henry,	Wellsboro',	3927 Baltimore Ave.
Humphreys, Harry Gass,	San Diego, Cal.,	3738 Locust St.
Hutchinson, Alfred Dunbar,	Trenton, N. J.,	3432 Sansom St.
Huyette, Martin Luther,	Shillington,	12 S. 34th St.
Irwin, James Willoughby,	Philadelphia,	4634 Chester Ave.
James, Uriah Agrippa,	Wilkesbarre,	214 S. 37th St.
Kane, James A. Bayard,	Philadelphia,	245 S 15th St.
Keim, William Franklin, M. S. (Lincoln, Neb.),	Addison,	3709 Woodland Ave.
Keogh, John Victor,	Dubuque, Iowa,	Dorm. 241, K.
Kluttz, Clarence, B. S. (North Carolina),	Salisbury, N. C.,	124 S. 34th St.
Kohn, Bernard, B. S., M. S., (Pennsylvania),	Philadelphia,	1523 N. 8th St.

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Name.	Residence.	City Address.
Krebs, Lloyd LeRoy,	Cedar Rapids, Ia.,	3323 Spg. Garden St.
Lane, Lauriston Job, B. S.	Sao Paulo, Brazil,	Dorm. 141, M.
Langham, William H,	Manor,	3449 Woodland Ave.
Laughlin, Harry,	Philadelphia,	2856 Frankford Ave.
Laird, Arthur Turner, A. B. (Oberlin),	Hinsdale, Mass.,	Dorm. 435, I.
Leaman, Walter John, B. S. (Pennsylvania),	Leaman Place,	3533 Locust St.
Ledbetter, Robert Emmet,	Staunton, Va.,	Dorm. 231, H.
Lessig, James Alfred,	Schuylkill Haven,	202 S. 37th St.
Levering, Guy Percival,	Lafayette, Ind.,	3604 Walnut St.
Lewis, Eugene Richards,	Dubuque, Iowa,	6329 Sherwood Road.
Light, Samuel Dawson W	Iona,	3269 Woodland Ave
Light, Israel Jacob Kapp,	do.	3269 Woodland Ave.
Lilley, Wilbur Marchand,	California,	24 S. 34th St.
Lindeman, Charles Edward,	Meadville,	3947 Baltimore Ave.
Lindsey, John Hathaway, A. B. (Brown),	Fall River, Mass,	3625 Locust St.
Lippert, William Henry,	Philadelphia,	1716 N. 18th St.
Livingood, William Worman,	Reading,	Dorm. 144, N.
Loeb, Victor Alexander,	Philadelphia,	957 N. 8th St.
Longwell, Stephen Benton Elkins,	Santa Fé, N. M.,	4445 Chestnut St.
Lowa, Walter,	Philadelphia,	657 N. Broad St.
Luther, John Weaver,	Reading,	2033 N. College Ave.
Luburg, Leon Franklin,	Philadelphia,	145 N. 8th St.
McClure, Charles Francis, A. B. (Oberlin),	Western Springs, Ill.,	436 S. 40th St.
McClure, Sorden,	Philadelphia,	21 S. 16th St.
McGowan, Joseph Augustine,	do.	2210 Poplar St.
McKibbin, James Malcolm, B. S. (Penna. State),	Amaranth,	3439 Chestnut St.
McWilliams, Frank,	Schuylkill Haven,	3900 Baltimore Ave.
Marshall, Joseph Chandler,	Kennett Square,	3322 Woodland Ave.
Meigh, Josiah,	Trenton, N. J.,	3225 Sansom St.
Miller, Thomas Alfred,	Pittsburg,	Dorm. 431, G.
Mongel, Ernest Bernhardt,	Philadelphia,	3255 Irving St.
Montgomery, Beriah Alembert, B. S. (Grove City),	Grove City,	Dorm. 437, I.
Moore, Edward Joseph,	Plymouth,	3704 Walnut St.
Muller, George Paul,	Philadelphia,	1930 Wallace St.
Neff, Charles Clarence,	Williamsport,	3422 Sansom St.
Newlin, Arthur, B. S. (Pennsylvania),	Secane,	Dorm. 230, H.
Newmayer, Solomon,	Philadelphia,	727 South St.
Norris, George William, A.B. (Pennsylvania,)	do.	1530 Locust St.
Odell, Thomas George,	Salt Lake City, Utah,	Dorm. 336, D.
O'Meara, John George,	Pawtucket, R. I.,	3433 Walnut St.
Palmer, Loring Brainerd, A. B. (Atlanta),	Atlanta, Ga.,	26 N. 38th St.

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Name.	Residence.	City Address.
Palmer, Myron Botsford,	Union Hill, N. Y.,	Dorm. 238, J.
Parker, Frank Clareloux,	Norristown.	
Paul, Thomas Morrison,	Philadelphia,	1420 Christian St.
Phinney, Frank Douglas, A. B. (New Brunswick),	Fredericton, N. B.,	Dorm. 418, C.
Pittinger, Charles Ru Lon,	Easton,	3619 Locust St.
Pollard, Walter Byrd,	Norfolk, Va.,	3433 Walnut St.
Potter, Gurdon,	Belvidere, Ill.,	Dorm. 136, J.
Potter, Henry Bertram,	Providence, R. I.,	3711 Woodland Ave.
Price, Henry Thompson, A. B. (Penna. State),	Allegheny,	3738 Locust St.
Rank, David Mummah,	East Hanover,	12 S. 34th St.
Rankin, George Thomas, Jr.,	Akron, Ohio,	Dorm. 338, D.
Ressler, John Lyte,	Mascot,	3225 Sansom St.
Reynolds, Charles Ransom,	Elmira, N. Y.,	122 S. 34th St.
Ridgway, George Malvern,	Trenton, N. J.,	Dorm. 360, H.
Risley, John Norman,	Philadelphia,	1722 Walnut St.
Ritchie, Marion Delmar,	Harrisburg,	3617 Locust St.
Roberts, James Eugene,	Philadelphia,	3947 Baltimore Ave.
Saeger, Luther Jacob,	Allentown,	2143 Van Pelt St.
Samuel, Meredith Iver,	Wilkesbarre,	3933 Baltimore Ave.
Sanders, Henry Clay, Jr., A. B. (Dartmouth),	Claremont, N. H.,	Dorm. 368, K.
Seitz, Charles Lewis,	Evansville, Ind.,	129 S. 36th St.
Shaffner, John Francis, Jr., B. S. (North Carolina),	Salem, N. C.,	124 S. 34th St.
Shailer, Sumner,	New York, N. Y.,	[240 W. 104th St.]
Shaw, Farnham Horatio,	Wellsboro',	3433 Walnut St.
Shelmerdine, Edward Kirkland, Jr.,	Philadelphia,	2105 N. 13th St.
Shepherd, Irwin James,	DelawareCity, Del.,	Dorm. 398, O.
Sherrer, Harry Straub, Ph. B. (Lafayette),	Bangor,	3913 Woodland Ave.
Shifferstine, Edgar Ephraim,	Tamaqua,	3413 Walnut St.
Sichel, Clarence C	Philadelphia,	1812 Mt. Vernon St.
Smith, Archibald, Jr., B. S. (Georgia),	La Grange, Ga.,	258 S. 38th St.
Smith, Edmund Landus,	Alum Bank,	3709 Woodland Ave.
Smith, John Fogg,	Salem, N. J.,	247 S. 15th St.
Smith, Rodney,	Saegertown,	3931 Baltimore Ave.
Steel, William Albert, B. S. (Pennsylvania),	Philadelphia,	1734 Park Ave.
Stemple, John Henry, Jr.,	Conshohocken.	
Stewart, Charles Rowland,	Indiana,	3715 Woodland Ave.
Stith, Robert Marcus,	Muscatine, Iowa,	124 S. 36th St.
Stotsenburg, James McPherson,	Brackett, Texas,	5135 Hadfield St.
Taylor, Robert Fletcher,	Philadelphia,	2450 Amber St.
Templeton, Harry Gorham,	Plymouth,	204 S. 36th St.
Thatcher, Paxson Blakey,	Philadelphia,	3500 Hamilton St.
Tismer, Gustav Paul,	do.	3735 Spruce St.

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Name.	Residence.	City Address.
Tompkins, Erle Duncan, B. S. (Iowa),	Clear Lake, Iowa,	3617 Locust St.
Traynor, Joseph Eugene,	Wilmington, Del.,	[615 West St.]
Troutman, George Christian,	Pottsville,	Dorm. 447, I.
Updegraff, Harry Covode,	Fort Palmer,	3715 Woodland Ave.
Uptegrove, Edward Pierson,	Middletown, N.Y.,	3122 Sansom St.
Van Kirk, Herbert Spencer,	McKeesport,	1012 S. 48th St.
Wagner, Andrew Fremont,	Easton,	3475 Sansom St.
Wanamaker, John, 3d,	Philadelphia,	1511 Mt. Vernon St.
Ward, William Douglas, A. B. (Princeton),	Rochester, N. Y.,	3611 Locust St.
Warren, Franklin Lafayette, B. S. (Boston University),	Shirley, Mass.,	3439 Lancaster Ave.
Whealton, Aydelotte Will, A. B. (Western Md.),	Chincoteague, Va.,	3933 Baltimore Ave.
Whiteway, Harold Morse,	Philadelphia,	4136 Sansom St.
Wiesenberg, Theodore Herman,	New York, N. Y.,	3609 Locust St.
Wilcox, Archa Edward,	Minneapolis, Minn.,	Dorm. 139, L.
Wintersteen, Thomas Beaver,	Danville.	3719 Spruce St.
Wolf, Wilbert Joseph,	Philadelphia,	3731 Locust St.
Woodburn, Charles Ladd, A. B. (Princeton),	Towanda,	3248 Sansom St.
Woods, Andrew Henry, A.B. (Washington and Lee),	Martinsburg, W. Va.,	Dorm. 455, O.
Wunder, Charles Whitall,	Philadelphia,	Dorm. 136, J.
Young, Frank Raymond, B. S. (Trinity),	Smethport,	3604 Walnut St.
Ziegler, Samuel Mason, A.B. (Grove City),	Mercer,	3604 Walnut St.

THIRD-YEAR CLASS.

Adams, Wilmer,	Easton, Md.,	602 S. 48th St.
Allen, Francis Olcott, Jr., A. B. (Princeton),	Chestnut Hill,	1539 Pine St.
Ashhurst, Astley Paston Cooper, A. B. (Pennsylvania),	Philadelphia,	2000 W. DeLancey Pl.
Ashley, Charles,	Plymouth,	204 S. 36th St.
Asher, Joseph Mastbaum,	Philadelphia,	1527 Girard Ave.
Attix, Fred Franklin,	Glenwood Springs, Col.,	116 S. 33d St.
Atlee, John Light, A. B. (Franklin and Marshall),	Lancaster,	Dorm. 518, B.
Baldwin, James Harvey, A. B. (Wooster),	West Liberty, O.,	Dorm. 443, K.
Banton, Conwell,	Philadelphia,	1210 Christian St.
Bare, Horace Cleveland,	do.	2030 Mt. Vernon St.
Barnard, Everett Pusey,	Collamer,	3613 Locust St.

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Name.	Residence.	City Address.
Bernardy, Henry Leander, B. S. (Pennsylvania),	Philadelphia,	221 S. 17th St.
Bertolet, William Schaeffer, A. B. (Franklin and Marshall),	do.	4403 Chestnut St.
Blose, Daniel Patterson,	McKeesport,	Dorm. 134, I.
Bly, Perry Amidon,	Rochester, N. Y.,	4014 Spruce St.
Bowen, Frederick Colin Hugh,	Bridgetown, Barbadoes, W. I.,	110 S. 33d St.
Bremer, Paul Frederick,	Philadelphia,	1723 Spring Garden St.
Brosius, Peter Francis,	Ashland,	3471 Sansom St.
Browne, Charles, A. B. (Princeton),	Philadelphia,	1126 Spruce St.
Buchanan, Thomas Claire,	Honeybrook,	3717 Spruce St.
Burns, John MacGregor,	Mansfield, Ohio,	Dorm. 374, K.
Butler, Ralph,	Philadelphia,	2127 Green St.
Butte, Harley Jones,	Ashland, Neb.,	2518 Carpenter St.
Campbell, William King,	Long Branch, N.J.,	31 N. 36th St.
Carpenter, Howard Childs,	Philadelphia,	1523 Locust St.
Carroll, George Gregory,	Rochester, N. Y.,	Dorm. 426, F.
Chandlee, William Herbert,	Sunnyburn,	2620 Bridge St., Bdg.
Chapin, David Raymond,	Brooklyn, N. Y.,	Dorm. 407, B.
Clothier, Joseph,	Philadelphia,	2439 Cedar St.
Coca, Arthur Fernandez, A. B. (Haverford),	Wayne.	
Coffin, Jacob Morgan,	Philadelphia,	216 S. 37th St.
Coleman, Thomas, A. B. (Lincoln),	Augusta, Ga.,	1722 Addison St.
Colgan, John A	Philadelphia,	2221 N. Broad St.
Conner, William Borden,	Bridgeton, N. J.,	Dorm. 426, F.
Constien, Rudolph Adam,	Ashland,	Dorm. 375, L.
Cooper, Francis L.,	Narberth.	
Cope, John Cozar,	Greensburg,	Dorm. 309, A.
Cope, Thomas Appleton,	Philadelphia,	Dorm. 359, H.
Crosby, William Smythe,	do.	Dorm. 314, B.
Cunningham, Edward Joseph,	do.	1537 S. Broad St.
Dale, Frederick Allport, B. S. (Penna. State),	Lemont,	Dorm. 127, G.
DeSilver, Joseph Francis,	Washington, D.C.,	5107 Wayne Ave., Gtn.
DeWitt, Wallace,	Fort Monroe, Va.,	Dorm. 330, C.
Dill, Wallace Wright,	Norristown	
Dorrance, George Morris, Jr.,	Bristol,	Dorm. 312, B.
Dorsett, Rae Shepard, B. S. (Oberlin),	Sinclairville, N.Y.,	Dorm. 116, D.
Dougherty, John,	Philadelphia,	3625 Walnut St.
Drake, Francis James, Ph. B. (Lafayette),	Phillipsburg, N.J.,	Dorm. 375, K.
Ehrlick, Benjamin Praskor,	San José, Cal.,	1623 Arch St.
Elrick, Robert Black,	Harrisville,	3704 Walnut St.
Engle, Guy David,	Hazleton,	Dorm. 236, J.

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Name.	Residence.	City Address.
Ewing, William Bingham,	West Grove,	3322 Woodland Ave.
Findley, Joseph Dysart, A.B. (Lafayette,)	Altoona,	Dorm. 212, C.
Fischer, Herman Adam,	Wilkesbarre,	223 S. 33d St.
Fretz, Howard Gurney, A.B. (Franklin and Marshall),	Palmyra,	123 S. 34th St.
Fretz, Samuel Edward,	Sellersville,	3719 Spruce St.
Gallagher, John Douglas,	Philadelphia,	3613 Locust St.
Gamez, Octavio Augusto,	Rivas, Nic.,	3337 Woodland Ave.
Gilpin, Friend Bennett,	Newfoundland,	3804 Spruce St.
Gildersleeve, Nathaniel,	Brookston,	Dorm. 435, I.
Goepp, Rudolph Max,	Philadelphia,	1913 Rittenhouse St.
Goldberg, Harold Goodman,	do.	1518 Diamond St.
Gomez, Gustavo,	Managua, Nic.,	3413 Walnut St.
Goss, Charles,	Philadelphia,	Dorm. 383, M.
Graf, Edmund Lewis,	do.	4813 Baltimore Ave.
Graves, Everett Amos,	Nottingham,	3254 Sansom St.
Greaves, John Dale,	Warren,	Dorm. 101, A.
Griffith, Robert Blake,	Council Bluffs, Ia.,	3738 Locust St.
Hagey, Arch Raymond,	Martinsburg,	3607 Locust St.
Haines, Edgar James,	Marlton, N. J.,	Dorm. 381, M.
Harris, Frank,	Trenton, N. J.,	[32 Fowler St.]
Harrison, Frank,	East Liverpool, O.,	3336 Walnut St.
Hatfield, Charles James, A. M. (Princeton),	Philadelphia,	3904 Baltimore Ave.
Heilman, Sharon Peter,	Kittanning,	3433 Walnut St.
Hershey, George Bear,	Black Horse,	3346 Lancaster Ave.
Hesse, Herman Wm., A. B. (Newberry),	Savannah, Ga.,	3704 Spruce St.
Hickson, William James,	New York, N. Y.,	Dorm 365, I.
Hinrichs, August Gustav,	San Francisco, Cal.,	1437 N. 16th St.
Holler, Henry Godfrey,	Williamsport,	Dorm. 110, C.
Hoffman, John William,	Stockton, N. J.,	417 N. 41st St.
Hooker, Richard Sydney,	Philadelphia,	4422 Chestnut St.
Hosmer, Charles Morton,	Maryville, Mo.,	3949 Baltimore Ave.
Hoyt, Daniel Mansfield, B. P. (Brown),	Philadelphia,	3604 Chestnut St.
Hume, John Elias, A. B. (Haverford)	do.	1703 Montgomery St.
Hunter, John Wilson, B. S. (Pennsylvania),	do.	1172 S. Broad St.
Husband, George Lionel,	do.	108 South 36th St.
Ireys, Junius Taylor, B. S. (Mississippi),	Greenville, Miss.,	208 S. 36th St.
Irvin, Spencer Potter, Jr.,	Philadelphia,	1157 S. 19th St.
Ives, Frederick Merwin, B. S., C. E. (Pennsylvania),	New York, N. Y.,	Dorm. 412, B.
Jacobs, Francis Brinton, B. S. (Haverford),	West Chester,	1318 Spruce St.
Johnson, William Sidney,	Philadelphia,	4214 Walnut St.
Jones, Russell Robins,	Pottsville,	Dorm. 112, C.

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Name.	Residence.	City Address.
Jordan, Thos. Barnett Lewis,	Williamsport,	Dorm. 394, O.
Katzenstein, George Paul, B. S. (Wisconsin),	Milwaukee, Wis.,	Dorm. 334, C.
Keech, Harry Brown, A. B. (Lincoln,)	Tweedale,	3608 Locust St.
Kemp, John Hamilton,	Philadelphia,	2054 South St.
Kirby, Holder Crary,	New Bedford, Mass.,	Dorm. 112, C.
Knorr, John Keyser, Jr.,	Philadelphia,	1943 N. Broad St.
Koons, Robert Ottens, B. S. (Bucknell),	Conyngham,	3346 Lancaster Ave.
*Koonz, William,	Philadelphia,	2838 Richmond St.
Lamson, Roy Clifton,	Neosho, Mo.,	3338 Lancaster Ave.
Landenberger, John Carroll,	Rock Spring, Wyo.,	Dorm. 401, A.
Large, Charles Peters,	Buckingham,	Dorm. 322, B.
Law, Frederick M,	Cleveland, Ohio,	3533 Locust St.
Lesher, Thompson Mulford,	Philadelphia,	1436 N. 18th St.
Levi, Isaac Valentine,	do.	939 Franklin St.
Lewald, Samuel,	do.	818 N. 8th St.
Lewis, Stephen C, A. B. (Grove City),	Frostburg,	Dorm. 437, I.
Little, Thomas Robinson, B.S.(North Carolina),	Little's Mills, N. C.,	Dorm. 452, M.
Little, William Lawson,	Shelbyville, Tenn.,	3738 Locust St.
Loudon, Edward Whitmer, B. S. (Gettysburg),	Altoona,	3338 Walnut St.
Lukens, George Thomas, A. B. (Pennsylvania),	Conshohocken,	Dorm. 114, D.
Lutz, Hiram L.,	Chester,	3430 Sansom St.
MacLachlan, Archibald Alexander, A. B. (Washington and Jefferson),	Claysville,	3259 Woodland Ave.
Mackin, Thomas Henry,	Wilkesbarre,	3704 Walnut St.
Marcy, Virgil Maro Dow,	Cape May, N. J.,	3130 Woodland Ave.
Marshall, Clifford Cleland, B. S. (Pennsylvania),	Sharon,	Dorm. 133, I.
Martin, Collier Ford,	Ardmore.	
Mason, Luther Smith, A.B. (Bates),	Belfast, Me.,	Dorm. 321, B.
Mendenhall, Clinton Dickinson,	Bordentown, N. J.,	Dorm. 251, O.
Miller, Victor Davis, Jr.,	Mason-Dixon,	Dorm. 367, K.
Mitchell, Charles Henry,	Trenton, N. J.,	3336 Walnut St.
Mitchell, Henry Arthur,	Elkton, Md.,	3604 Walnut St.
Möllman, Rudolph Clarence,	Philadelphia,	3604 Walnut St.
Mossman, Beriah Edwin, Jr.,	Greenville,	Dorm. 218, E.
Müller, William Kolce,	Philadelphia,	Dorm. 323, H.
Myers, Hewitt Clyde,	Alexandria,	3330 Woodland Ave.
McCool, Joseph Lettelle,	Pottsville,	Dorm. 359, H.

* Pursuing Three-year Course.

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Name.	Residence.	City Address.
McCreight, Charles,	Philadelphia,	1358 Marlboro St.
McCurdy, John R A. B. (Washington and Jefferson),	Monongahela,	3254 Chestnut St.
McDevitt, Charles Howard,	Philadelphia,	239 E. Rittenhouse St., Gtn
McGuire, James Joseph,	Trenton, N. J.,	1226 Walnut St.
McVean, Stuart N. B. S. (Westminster),	New York, N. Y.,	Dorm. 365, I.
Newhall, Avery Lester,	Peabody, Mass.,	Dorm. 307, A.
Nichols, William,	Philadelphia,	2115 Bainbridge St.
Neidermeier, Arthur F.,	Trenton, N. J.	
Oestreich, Henry Nicholas,	St. Clair,	3313 Walnut St.
O'Connor, Roderic,	Philadelphia,	4127 Woodland Ave.
Ohlman, Isaac Loeb, A. B. (Allegheny),	Meadville,	Dorm. 301, A.
O'Reilly, Charles Aloysius,	Reading,	3311 Walnut St.
Osgood, Walter Wordsworth,	Chicago, Ill.	4830 Westminster Av.
Outland, John Henry,	Glen Elder, Kan.,	Dorm. 122, E.
Parker, Clifford Brick,	Pittsburg,	802 N. 41st St.
Paul, Frederick Marshall, A. B. (Princeton),	Philadelphia,	1126 Spruce St.
Pike, George Lawrence,	do.	126 S. 16th St.
Price, Charles Will,	Edwardsdale,	3437 Lancaster Ave.
Purnell, Harry Selby,	Berlin, Md.,	Dorm. 333, C.
Raunick, John Martin Julius,	Steelton,	120 S. 33d St.
Rhoads, Joseph Edward, Jr.,	Harrisburg,	Dorm. 211, C.
Rice, Fred,	Gordon,	3471 Sansom St.
Richards, Emrys,	Wilkesbarre,	3425 Walnut St.
Riggin, Levi Lore, Ph. B. (Bucknell),	Port Norris, N. J.,	204 S. 36th St.
Robinson, Edwin Taylor,	Philadelphia,	Dorm. 332, C.
Rosenthal, Jacob, B. S. (Notre Dame),	Petoskey, Mich.,	3433 Walnut St.
Rosenthal, Samuel Hendricks,	Rochester, N. Y.,	Dorm. 253, O.
Ross, Alexander Scanlin,	Philadelphia,	2228 S. Broad St.
Rupp, Frederick Augustine, A. B. (Franklin and Marshall),	Lancaster,	Dorm. 397, O.
Sandt, Frank Raymond,	Easton,	202 S. 37th St.
Schrack, William Dunton,	Philadelphia,	248 Harvey St., Gtn.
Seely, Frank Edmond,	Jersey Shore,	3336 Chestnut St.
Seeley, John, Ph.B. (Cornell,	Woodhull, N. Y.,	111 S. 34th St.
Seymour, Fayette Lionelle,	Port Jervis, N.Y.,	3439 Chestnut St.
Shields, William Grant, Jr.,	Philadelphia,	412 School Lane, Gtn.
Shoemaker, Albert Moore,	Phœnixville,	3615 Locust St.
Singer, Benjamin Louis,	Carbondale,	3953 Baltimore Ave.
Sinkler, Francis Wharton, A. B. (Pennsylvania),	Philadelphia,	1606 Walnut St.

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Name.	Residence.	City Address.
Smart, John Leo,	Philadelphia,	2207 Pine St.
Smith, Forrest Bedford,	Belton, Texas,	3316 Wodland Ave.
Smyser, Harry David,	York,	202 S. 37th St.
Snow, Morton McCulloch,	Chicago, Ill.,	3617 Locust St.
Solis-Cohen, Myer, A. B. (Pennsylvania),	Philadelphia,	Wissahickon Av., Gtn.
Staab, Edward Adolph, A. B. (Swarthmore); A. B. (Harvard),	Sante Fé, N. M.,	3725 Locust St.
Stahr, Charles Patterson, A. B. (Franklin and Marshall),	Lancaster,	Dorm. 377, K.
Steinhart, Lewis Philip,	Philadelphia,	1812 N. 8th St.
Stewart, Thomas Somerville, Jr.,	do.	1031 Spruce St.
Stiles, Francis Augustus,	Fulton, N. Y.,	Dorm. 215 D.
Struble, Harry Beech,	Trenton, N. J.,	3607 Locust St.
Suarez, Camilo Alberto,	Cucuta, U. S. Col.,	Dorm. 388, M.
Sulouff, Samuel Henry,	Patterson,	1237 S. Broad St.
Swallow, Frank Lewis,	Lambertville, N.J.,	223 S. 33d St.
Sweazey, Virge Eugene,	Savinsville,	3423 Walnut St.
Swindells, Walton Creadick,	Philadelphia,	1827 Tioga St.
Tagg, Oscar,	do.	717 Fairmount Ave.
Taylor, Frank,	Hazleton,	Dorm. 143, M.
Taylor, John Martin, B. S. C. E. (Missouri),	Blackburn, Mo.,	Dorm. 319, B.
Torian, Oscar Noel, A. B. (Univ. of the South),	Evansville, Ind.,	Dorm. 214, D.
Todd, James Campbell, Ph. B. (Wooster),	Wooster, Ohio,	Dorm. 443. K.
Vander-Bogart, Frank,	Schenectady, N.Y.,	Dorm. 141, M.
Walker, Claude William,	Scranton,	Dorm. 314, B.
Walker, John Keasby,	Philadelphia,	1632 Spruce St.
Walker, Warren,	do.	1632 Spruce St.
Walters, Francis Joseph,	Laurel Springs, N. J.,	625 S. 10th St.
Wampole, Henry Smith,	Philadelphia,	2101 N. 19th St.
Watt, James,	Brooklyn, N. Y.,	Dorm. 137, K.
Webster, Daniel K,	Philadelphia,	2707 Ann St.
Weinberg, Herman,	Youngstown, O.,	3433 Walnut St.
Wharton, Charles Marriam,	Smyrna, Del.,	3445 Walnut St.
Williams, Hiram Tobias,	Philadelphia,	1233 Pine St.
Willson, Arthur Joshua,	Williamsport,	3131 Powelton Ave.
Winsor, Henry,	Haverford,	3537 Locust St.
Wright, Galen Rowe,	Baltimore, Md.,	Dorm. 359, H.
Zeitz, Arthur Clemens,	Sydney, Aus.,	3445 Chestnut St.
Ziegler, Charles Edward, Ph. B. (Dickinson),	Carlisle,	Dorm. 436, I.

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Name.	Residence.	City Address.
SECOND-YEAR CLASS.		
Allen, Harrison, Jr., B. S. (Pennsylvania),	Philadelphia,	4100 Pine St.
Amrock, John Henry,	Waltham, Mass.,	3304 Woodland Ave.
Andress, William Russell,	Philadelphia,	2604 Ridge Ave.
Axford, W Homer,	Naughright, N. J.,	206 S. 36th St.
Baker, Hugh,	Wilmington, Del.	
Bainbridge, Empson Haines,	Philadelphia,	1505 Poplar St.
Barnes, Benjamin Franklin, Jr.,	Monticello, Fla.,	436 S. 40th St.
Barton, James Lloyd,	Waterford,	Dorm. 420, E.
Bennett, William Fred,	Nanticoke,	214 S. 37th St.
Bishop, Franklin Lee,	Boston, Mass.,	3344 Walnut St.
Booth, William Arthur,	Philadelphia,	3607 Locust St.
Boyer, Arthur Truman,	Camden, N. J.,	[1131 S. 4th St.]
Braden, Frank Robert,	Washington, Kan.,	3423 Walnut St.
Brooks, Macy, A. B. (Princeton),	Philadelphia,	117 N. 33d St.
Brooks, Ralph,	Canton,	3248 Sansom St.
Bryan, Herman,	Carthage, Mo.,	Dorm. 429, G.
Cadwalader, William Biddle,	Fort Washington,	Dorm. 306, A.
Callan, Lewis J White,	Yonkers, N. Y.,	Dorm. 378, K.
Carmichael, Arthur,	Sandy Lake,	3336 Chestnut St.
Chalfant, Sidney Alexander, B. S. (Geneva).	Turtle Creek,	110 S. 33d St.
Clifton, Harry Coltman,	Philadelphia,	1916 N. 21st St.
Cook, George William,	York,	Dorm. 399, O.
Cornell, Walter Stewart, B. S. (Pennsylvania),	Philadelphia,	1725 N. 16th St.
Cross, Sumner Hayford, A. B (Pennsylvania),	Jenkintown.	
Cruikshank, Omar Trees,	Pittsburg,	Dorm. 382, M.
Cummins, Robert Perry,	Bellaire, O.,	3254 Chestnut St.
Dalbey, James Percival,	Philadelphia,	4715 Baltimore Ave.
Decker, Clinton Lloyd,	Boonton, N. J.,	3921 Baltimore Ave.
Dickson, John,	Broughshane, Ire.,	3308 Woodland Ave.
Dillard, Henry Kuhl, Jr.,	Philadelphia,	234 S. 20th St.
Dinan, Raymond Aloysius,	South Bethlehem,	3338 Walnut St.
Doig, Arthur Knox, A. B. (Union),	Asbury Park, N.J.,	3271 Sansom St.
Dukes, John Levi,	Denton, Md.,	907 N. 42d St.
Dunn, John T	Philadelphia,	2327 Wharton St.
Duryee, Albert Plummer,	Everett, Wash.,	Dorm. 413, E.
Eberly, Austin Coover,	Mechanicsburg,	3309 Walnut St.
Echard, Thomas Buttermore,	Connellsville,	Dorm. 205, B.
Ewing, George Justice,	Philadelphia,	3926 Chestnut St.
Fahy, John Eugene,	do.	1609 N. 10th St.
Falkowsky, Charles, Jr.,	Scranton,	131 S. 36th St.
Flannery, Henry, Jr.,	Douglasville,	128 S. 39th St.

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Name.	Residence.	City Address.
Flickwir, Arthur Heath,	Beardstown, Ill.,	3334 Walnut St.
Fox, Herbert,	Philadelphia,	1803 Tioga St.
Fraser, Frederick Alexander,	Providence, R. I.,	3702 Spruce St.
Gardiner, John Paterson,	Toledo, O.,	Dorm. 221, E.
Gash, Charles Otho,	Bradford,	2005 Chestnut St.
Gaughan, Martin Charles,	Pittston,	3337 Woodland Ave.
Geer, Le Roy Thomas,	Seneca Falls, N. Y.,	2347 St. Alban's Place.
Gerhard, James Rieser, A. B. (Yale),	Douglasville,	128 S. 39th St.
Gerry, Carroll Hunter,	Shrewsbury,	Dorm. 231, I.
Gleason, Benjamin Whitney,	Boston, Mass.,	3344 Walnut St.
Gobeille, Louis Napoleon,	Woonsocket, R. I.,	105 S. 34th St.
Graham, Joseph,	Hillsboro, N. C.,	3313 Walnut St.
Greene, S Harry	New York, N. Y.,	3422 Sansom St.
Grove, Frank Paul,	Alexandria,	3410 Sansom St.
Haff, Charles Alfred.	Cementon,	3265 Locust St.
Hall, John Baptiste, Jr., Ph. B (Yale),	New Orleans, La.,	Dorm. 315, B.
Hall, William Charles	Pittsburg,	3344 Walnut St.
Hamilton, Benjamin Wallace,	Harrisburg,	Dorm 124, F.
Harrar, James Aitken,	Williamsport,	Dorm. 115, D.
Hartzell, Solomon Myer,	Youngstown, O.,	3443 Walnut St.
Hayden, John Francis,	Bryn Mawr,	Bryn Mawr.
Hazen, Roland	Cincinnati, O.,	Dorm. 415, C.
Heck, John Anthony,	Philadelphia,	510 Jefferson St.
Hedges, John,	do.	5534 Pulaski St., Gtn.
Henderson, Thomas Dyer,	Pulaski, N. Y.,	3413 Walnut St.
Heysinger, James Downie,	Philadelphia,	1521 Poplar St.
Hill, Harry Annis,	Bethlehem,	3926 Pine St.
Holman, Frank Kennedy,	Sumter, S. C.,	436 S. 40th St.
Holmes, Charles Holyoke, A. B. (Bowdoin),	Brewer, Me.,	3419 Walnut St.
Hom, Garret Frank,	Lehighton,	3316 Woodland Ave.
Howard, Alfred Philo,	Palestine, Tex.,	Dorm. 331, C.
Hungerbuehler, John Conrad,	Philadelphia,	636 Callowhill St.
Illman, George Morton,	Worcester, Mass ,	Dorm. 250, N.
Jackson, William R,	Towanda,	3423 Walnut St.
Jennings, Charles Wilhelm,	Harrisburg,	Dorm. 449, M.
Johnson, James McDowell,	Mercersburg,	3701 Woodland Ave.
Jones, Ross Holman,	Coudersport,	114 S. 33d St.
Kelly, James Alphonsus, A. B. (La Salle),	Philadelphia,	4257 Main St , Myk.
Kiesel, Ernest Louis Alexander,	Scranton,	3729 Spruce St.
Koenig, Arthur Scott,	Lewistown,	Dorm. 411, B.
Koerper, Conrad Epping,	Omaha, Neb ,	Dorm. 414, C.
Lake, Frederick Williams,	Omaha, Neb.,	3435 Walnut St.
Lamade, Albert Charles,	Williamsport,	3439 Woodland Ave.
Landauer, Oscar,	Philadelphia,	1151 S. Broad St.

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Name.	Residence.	City Address.
Langdon, Heilner Maxwell,	Philadelphia,	1536 Mt. Vernon St.
Lottus, Thomas Vincent,	Carbondale,	258 S. 38th St.
Longstreet, Chalmer Joseph,	Mexico, N. Y.,	3346 Walnut St.
Lummis, Clarence Percy,	Cedarville, N. J.,	3715 Woodland Ave.
Lummis, Marshall Flower,	Bridgeton, N. J.,	3715 Woodland Ave.
Lungren, Harry,	Wilmington, Del.,	[502 N. 9th St.]
Lyon, Donald Blodgett,	Pawtucket, R. I.,	5429 Lansdowne Ave.
Maxwell, John Ralph, A. B. (Wash and Jeff.),	Buffalo,	3259 Woodland Ave.
McAboy, Charles, Bradford,	Butler,	Dorm. 373, K.
McCaffrety, Watson,	Philadelphia,	118 S. 41st St.
McChrystal, Alexander Hancock,	Salt Lake City, Utah,	Dorm. 355, G.
McCloskey, John Francis,	Philadelphia,	Dorm. 346, E.
McCombs, Robert Shelmerdine,	do.	648 N. 11th St.
McConaghy, Albert,	Swarthmore	
McCracken, Josiah Calvin,	Sterling, Kan.	Dorm. 121, E.
McGill, Frank J	Philadelphia,	2454 N. Broad St.
McGrath, John Francis, A. M. (St. Vincent),	Connellsville,	Dorm. 205, B.
McManus, Nathaniel George,	Scranton,	3337 Woodland Ave.
Megargee, George Lewis,	Coatesville,	Dorm. 234, I.
Miller, Albert Griffith,	Philadelphia,	2150 N. 21st St.
Miller, David Isaac,	Harrisburg,	105 S. 34th St.
Montgomery, Charles Mortimer, A. B. (Pennsylvania),	West Chester,	Dorm. 451, O.
Moses, Joseph Snyder,	Chester Springs,	3107 Baring St.
Nisbett, Verner,	Van Wyck, S. C.,	603 S. 42d St.
Norris, John Waugh, Ph. B. (Dickinson),	Baltimore, Md.,	500 N. 20th St.
O'Connell, John Aloysius,	Carbondale,	258 S. 38th St.
Oman, Charles Malden,	Wilkesbarre,	305 S 39th St.
Otterbein, Frederic,	Pottsville,	24 Preston St.
Patterson, Harry Bynon,	New Boston,	Dorm. 449, M.
Paul, Samuel George,	Salt Lake City, Utah,	Dorm. 837, D.
Pfahler, James Frederick,	Catawissa,	3729 Spruce St.
Pollins, Abram Harvey,	Greensburg,	3338 Walnut St.
Porter, Byron Frank, B. S. (Maine),	Stillwater, Me,	122 S. 34th St.
Porter, Joseph White Humphry, B. S. (Maine),	Stillwater, Me.,	122 S. 34th St.
Portuondo, José, M	Kingston, W. I.,	3406 Sansom St.
Pratt, James Guy,	Fulton, N.Y.,	3256 Chestnut St.
Price, John Cooper,	Salem, N. J.,	3725 Spruce St.
Pursel, William Dana, D. D. S. (Pennsylvania),	Phillipsburg, N. J.	
Rayburn, Charles Clyde, B. S. (University of Illinois),	Roseville, Ill.,	3926 Pine St.

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Name.	Residence.	City Address
Rahte, Walter Eugene,	Milwaukee, Wis.,	Dorm. 335, C.
Rhein, Robert Davies,	Philadelphia,	200 S. 43d St.
Rhoads, Samuel,	do.	152 School Lane, Gtn.
Rhode, Homer Jonas,	Kutztown,	3643 Locust St.
Richards, Francis Palmer,	Belvidere, N. J.,	Dorm. 250, N.
Rich, Edward Yarnall,	Dyerstown,	Dorm. 406, A.
Rorke, John Henry,	Reading,	Dorm. 126, F.
Ruffell, Charles Einwechter,	Philadelphia,	1129 Marlboro St.
Russi, Oscar James,	Lambertville, N.J.,	3202 Summer St.
Russell, Edward Wright,	Fleming,	Dorm. 358, H.
Sallade, Jacob Lloyd,	Williamsport,	3131 Powelton Ave.
Saunders, John,	Wilmington, Del.,	[603 W. 9th St.]
Scarlett, Rufus Bell,	Erie,	Dorm. 131, H.
Schuman, Edward Armin,	Tacony,	7000 Tulip St.
Schwerin, Justin Gordon,	Philadelphia,	1521 N. 7th St.
Seward, Fred Henry,	Chester, N. J.,	1954 Marvine St.
Shellenberger, Edward Burgin,	Philadelphia,	5505 Germantown Ave.
Sherman, William O'Neill,	Lancaster,	Dorm. 376, K.
Siggins, John Charles,	Philadelphia,	530 N. 13th St.
Singer, John Johnston,	Connellsville,	3615 Locust St.
Sherrill, Alvan Woodward, B. S. (Oberlin),	Oberlin, O.,	Dorm. 361, I.
Smith, Lewis Watson, A. B. (Penna. Coll.),	Pittsburg,	3322 Woodland Ave.
Smith, Lloyd Llewellyn, C. E. (Princeton),	Trenton, N. J.,	3334 Walnut St.
Stanton, Herbert Charles, A. B. (Bucknell),	Chinchillo,	3953 Baltimore Ave.
Stevens, Guy Ernest, B. S. (Yale),	Scranton,	1243 N. 11th St.
Stricker, William Bruce,	Catawissa,	3729 Spruce St.
Taylor, Elwin Carlton,	West Nicholson,	3613 Locust St.
Thatcher, Winthrop Foster, A. B. (Oberlin),	Oberlin, Ohio,	3603 Sansom St.
Thomas, George Palmer,	Rochester, N. Y.,	Dorm. 362, I.
Thomson, George Graham,	Philadelphia,	1426 Walnut St.
Trimmer, Bruce Hurst,	York Springs.	3728 Walnut St.
Tressler, Charlie Webster,	Conyngham,	305 S. 39th St.
Uffenheimer, Joseph Louis,	Philadelphia,	3960 Pine St.
Ullom, Josephus Tucker, A. B. (Ohio),	Athens, Ohio,	211 S. 33d St.
Varian, Miles Guthrie,	Salt Lake City, Utah,	Dorm. 337, J.
Voigt, George Emil,	Honesdale,	3336 Chestnut St.
Wagaman, Samuel Mitchell, A. B., S B. (St. Johns),	Hagerstown, Md.,	3322 Woodland Ave.
Wallace, Wilbur Smiley, A. B. (Grove City),	East Brady,	Dorm. 502, F.
Warrick, Frank Keene Travers,	Glassboro, N. J.,	Dorm. 440, K.

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Name.	Residence.	City Address.
Waters, Charles Huff,	Trenton, N. J.,	[5 Pennington Ave.]
Wentz, Perry,	Drifton,	Dorm. 246, M.
Wertheimer, Herbert Gatz,	Allegheny,	Dorm. 356, G.
Whitmire, Fred Austin,	San José. Cal.,	3801 Ludlow St.
Wilcox, Homer Bowen,	Kingston,	214 S 37th St.
Wilson, Thomas Henry, A. B. (Oberlin),	Church Hill, Md.,	758 Warnock St.
Wintersteen, Jay Boone,	Port Carbon,	3423 Walnut St.
Wood, Harold Bacon,	Philadelphia,	635 Walnut St.
Wood, Walter Allen, A. B. (Oberlin),	Oberlin, Ohio,	Dorm. 249, N.
Woolbert, Roy,	Atlantic City, N.J.,	1108 N. 42d St.
Young, James Harrington,	Dunmore,	3609 Locust St.
Ziegler, John George,	Reading,	Dorm. 126, F.
Zook, Joseph Allen,	Belleville,	Dorm. 385, M.

FIRST-YEAR CLASS.

Alburger, Henry Rihl,	Philadelphia,	130 School Lane, Gtn
Allen, John Howard,	Portland, Me.,	3338 Lancaster Ave.
Allyn, Gurden Spicer,	Mystic, Conn.,	3323 Walnut St.
Allyn, Louis Maxson,	Mystic, Conn.,	3323 Walnut St.
Arnold, John Alfred,	Philadelphia,	4815 Regent's Square.
Bailey, Thomas William,	So. Bethlehem,	3338 Walnut St.
Baker, Hugh Worthington,	Mexico, N. Y.,	3346 Walnut St.
Baldwin, William Ray,	Elkton, Md.,	3704 Spruce St.
Ballard, Howard Spalding,	Troy,	3349 Woodland Ave.
Barndollar, William P, Jr.	Everett,	3432 Sansom St.
Bartle, Harvey,	Philadelphia,	Upper Roxborough.
Baumhauer, Theodore, Clergyman,	Whistler, Ala.,	129 S. 36th St.
Beach, Edward Warren,	Philadelphia,	4441 Spruce St.
Bechtel, James Frank,	Grafton,	214 S. 37th St.
Beckett, Frank Henry,	Fall River, Mass.,	3960 Pine St.
Beir, Ily Rosenberg,	Rochester, N. Y.,	Dorm. 328, C.
Bender, Engelbert Charles,	Ashland,	3316 Walnut St.
Boon, David John,	Philadelphia,	4307 Main St., Myk.
Bradley, Leo Fabian,	do.	850 N. 46th St.
Brandow, Oscar Miner, Jr.,	Wilkesbarre,	Dorm. 370, K.
Bready, William Ramsey, Jr.,	Philadelphia,	1921 N. 7th St.
Breslin, James,	Audubon, N. J.,	3313 Walnut St.
Brimhall, Silas Johnson, A. B. (Pomona),	San Diego, Cal.,	3729 Spruce St.
Brown, William Allan,	Greencastle,	3234 Lancaster Ave.
Brown, Lu Van Leer,	Manasquan, N.J.,	3711 Woodland Ave.
Brown, Thomas Watson,	Fort Warren, Mass.,	3607 Locust St.
Buntin, William Campbell, Jr.,	Terre Haute, Ind.,	3336 Chestnut St.
Butler, Richard Bernard,	Fall River, Mass.,	3960 Pine St.
Buyers, Edgar Stanley,	Honey Brook,	3431 Walnut St.
Campbell, Herman Berg,	Griggstown, N. J ,	111 S. 34th St.

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Name.	Residence.	City Address.
Camp, Carl Dudley,	Stroudsburg,	3316 Walnut St.
Carlin, Robert Golden, Ph. B. (Grove City),	Petrolia,	Dorm. 421, E.
Carpenter, William Dorr,	Philadelphia,	228 S. 21st St.
Chace, William Palmer,	Fall River, Mass.,	3960 Pine St.
Cheston, Daniel Murray, Jr.,	Philadelphia,	115 S. 20th St.
Christman, Daniel Evans,	Reading,	1321 Somerset St.
Clark, Irving Taylor,	Rochester, N. Y.,	Dorm. 362, I.
Collier, William Shreve,	Bordentown, N. J.,	3309 Walnut St.
Collins, Frank Horan,	Carbondale.	
Combs, George Ralph,	Leavenworth, Ks.,	215 De Kalb Square.
Cope, William Franklin, B. S. (Lafayette),	Nazareth,	3609 Locust St.
Crosby, Charles C,	Jefferson, Ohio,	3717 Spruce St.
Crowe, James,	Philadelphia,	Fox Chase.
Cummins, William Taylor,	Media.	
Dancy, Henry Hyman,	Phœnixville,	3615 Locust St.
Davies, David H.,	Lansford,	3413 Walnut St.
Davis, Edgar Felton,	Chester,	[220 W. 4th St.]
Deehan, Sylvester James,	Philadelphia,	811 N. 16th St.
De Freese, Joseph Hutton,	Warren,	Dorm. 101, A.
Deming, Ralph,	Sharon, Conn.,	3741 Spruce St.
Dennett, Harlan Ingalls,	North Adams, Mass.,	Dorm. 342, E.
Dettre, Read Donald,	Norristown,	[1302 De Kalb St.]
De Wolfe, Charles Livingston,	Chicora,	Dorm. 128, G.
Doland, Charles McClure,	Spokane, Wash.,	Dorm. 137, K.
Donley, John Edward, A. B. (Seton Hall,)	Providence, R. I.,	3711 Woodland Ave.
Douglas, Henry Rhea,	Shirleysburg.	3234 Lancaster Ave.
Dozier, Harry Cuttino,	Tampa, Fla.,	3711 Woodland Ave.
Drayton, William, Jr.,	Penllyn.	
Drumheller, Walter Edwin,	Shamokin,	3423 Walnut St.
Dunn, Thomas Francis,	Mahanoy City,	3260 Sansom St.
Dyer, John Robert,	Cheltenham,	865 N. 8th St.
Erieg, Frank Le Verne,	Williamsport,	27 N. 34th St.
Elliot, Arnold,	Philadelphia,	233 S. 40th St.
Evans, George Mainard, A. B. (Lincoln),	do.	1202 Kimball St.
Everhart, James Keeley,	Millerstown,	3265 Locust St.
Fenollosa, Sydney Kinsman, A. B. (Harvard),	Salem, Mass.,	Ardmore.
Ferrari, Alberto,	Honduras, C. A.,	3326 Walnut St.
Finck, Edward Beecher,	Philadelphia,	1120 Girard St.
Forsythe, James Perkins,	do.	202 N. 34th St.
Fox, Edward William,	Hartford, Conn.,	3251 Locust St.
Fox, Howard Payne,	Kittanning,	3336 Walnut St.
Geale, William Francis,	Chicago, Ill.,	Dorm. 303, A.
Gelder, Edgar Earl,	Virden, Ill.,	3735 Spruce St.
Geyer, George Washington,	Pittsburg,	3702 Spruce St.

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Name.	Residence.	City Address.
Gilles, Louis, Augustin,	Porto Prince, Hayti,	3223 Woodland Ave.
Goodman, Edward Harris, Jr.	Philadelphia,	3309 Arch St.
Goodman, James Edwards, Jr.,	Granville, N. Y.,	3923 Baltimore Ave.
Goodwin, Warren C, A. B. (Haverford),	Philadelphia,	3715 Baring St.
Gray, Henry Wolf, Jr.,	do.	723 Locust Ave., Gtn.
Greth, Philip Darius,	Reading,	Dorm. 405, A.
Griffith, Morgan Everett,	Pottsville,	3316 Walnut St.
Groff, Henry Clemens,	Harleysville,	3702 Spruce St.
Hardt, Albert Frederick,	Wellsboro',	3423 Walnut St.
Hardy, James Hazen,	Groveland, Mass.,	3711 Woodland Ave.
Hartman, Lawton Mervale,	York,	109 S. 34th St.
Harvey, Lewis Blaney,	Philadelphia,	819 S. 49th St.
Hawkins, Henry, A. B. (Bates),	Sullivan, Me.,	24 S. 34th St.
Hayes, William Clayton,	St. Clair,	3814 Spruce St.
Heilman, Arthur M.,	Kittanning,	3433 Walnut St.
Heilman, Frank Webster,	do.	1128 Spruce St.
Henry, Howard Gobin,	Annville,	3900 Baltimore Ave.
Herrman, Max, Jr.,	Philipsburgh,	1715 Diamond St.
Herzberg, Mortimer,	Philadelphia,	510 N. 6th St.
Hollingsworth, Israel Pemberton Pleasants,	do.	Chestnut Hill.
Ingle, Charles Van Hook,	Evansville, Ind.	2049 Wallace St.
Ingle, Henry Barr,	Philadelphia,	2049 Wallace St.
Johansson, Alfred Herman,	Clifton Springs, N. Y.,	3263 Sansom St.
Johns, John,	Martin's Ferry, Ohio,	204 S. 36th St.
Johnston, George,	Philadelphia,	Sumac St., Wissa.
Jones, James Russell,	Carbondale,	
Jones, John Francis Xavier, B. S. (Villanova),	Philadelphia,	3342 Walnut St.
Karnes, William Lee, Jr.,	Staunton, Va.,	Dorm. 217, D.
Kayser, Charles Douglas,	New York, N.Y.	122 S. 33d St.
Kelly, James Hobart, A. B. (Villanova),	do.	3419 Walnut St.
Kier, Porter Sawyer,	Pittsburg,	3336 Walnut St.
Kirby, Harry Joseph,	Harrisburg,	3649 Woodland Ave.
Klase, Harry Earp,	Danville,	124 Diamond St.
Knapp, Arthur Chamberlain,	South Bridgton, Me.	3741 Spruce St.
Knowles, Frank Crozer,	Philadelphia,	1628 Spruce St.
Korshet, Morris,	Mizpah, N. J.,	532 Manton St.
Kramer, Jost D.,	Dayton, Ohio,	Dorm. 428, F.
Kreger, Oliver Judson,	Kingwood,	3709 Woodland Ave.
Krickbaum, William Henry, Jr.,	Wilkesbarre,	3432 Sansom St.
Lawall, Frederick Thompson,	Easton,	Dorm. 326, C.

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Name.	Residence.	City Address.
Lavenson, Ralph S	Sacramento, Cal.,	Dorm. 434, G.
La Roque, George Paul,	Kinston, N. C.	115 S. 34th St.
Lawrence, Michael Herman,	Shamokin,	3321 Walnut St.
Lee, Walter Estell,	Philadelphia,	823 N. 24th St.
Lefever, Clarence Homer, A. B. (Allegheny),	Hayfield,	3408 Sansom St.
Leopold, Samuel,	Philadelphia,	1632 Franklin St.
Loeling, Gerhard,	do.	1710 Franklin St.
Luper, Daniel Bret,	do.	4124 Girard Ave.
McAvoy, Jere Francis,	Delano,	3927 Pine St.
McClure, Charles E, A. B. (Oregon),	Seattle, Wash.,	3710 Spruce St.
McConlogue, Harry Patrick,	Philadelphia,	2345 GermantownAve.
McConnico, Clifford Vaiden,	Vaiden, Miss.,	3806 Spruce St.
McConnon, George Henry,	Wilkesbarre.	3707 Walnut St.
McDonald, Silas, Jr., 2d,	St. Joseph, Mo.,	3265 Woodland Ave.
McDowell, Francis Cicero,	Tarboro', N. C.,	3717 Spruce St.
McGeagh, Albert Charles,	Pittsburg,	3927 Pine St.
MacFarland, Will West,	do.	3336 Walnut St.
Maclarlan, John Dick,	Philadelphia,	1805 Chestnut St.
Mahoney, John Dennis,	Somerton.	
Mallon, Edward Aloysius, B. S. (Villanova),	Philadelphia,	1935 N. 7th St.
Malone, Daniel Franey,	Shenandoah,	Dorm. 417, C.
Mastin, Theophilus Lacy,	Huntsville, Ala.	Dorm. 432, G.
Mattison, Richard Van Selous, Jr.,	Ambler.	
Maverick, William Chilton,	New York, N. Y.,	3256 Chestnut St.
Maxson, Frank Theodore,	Norfolk, Va.,	3804 Spruce St.
May, Eugene Samuel,	Roanoke, Va.,	1914 Mervine St.
Mays, Edmund Anstie,	Philadelphia,	1829 Spruce St.
Mehl, Hugo F,	Milwaukee, Wis.	
Mellor, William Bancroft,	Philadelphia,	5410 Wayne Ave., Gtn.
Merriam, William Harvey,	Oberlin, Ohio,	3430 Sansom St.
Merrill, William Charles,	Portland, Me.,	3338 Lancaster Ave.
Meyers, Arthur Henry,	Stafford Springs, Conn.,	120 S. 33d St.
Meyers, Milton Kayton,	Philadelphia,	1605 Marshall St.
Mills, Norman Clyde,	Brookville,	3427 Walnut St.
Moncure, William,	Raleigh, N. C.,	3431 Walnut St.
Mooney, William Francis,	West Brookfield, Mass.	215 S. 33d St.
Morton, David Cummins, A. B. (Hampden-Sidney),	Louisville, Ky.,	301 S. 40th St.
Moulton, Charles Day,	Bath, Me.,	230 Rittenhouse St., Gtn.
Murfin, James Gordon,	Jackson, Ohio,	1732 Bambrey St.
Murray, Malcolm Stewart,	Beaver,	110 S 33d St.
Nealon, William Ambrose,	Carbondale,	258 S. 38th St.
Noecker, Charles Benjamin,	Schuylkill Haven,	3336 Chestnut St.
Norris, Philip,	Philadelphia,	2122 Pine St.

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Name.	Residence.	City Address.
Northup, Arthur Miller,	Glenburn,	3608 Locust St.
Orbin, Walter Brown,	Pittsburg,	3439 Chestnut St.
Overholser, George Whitefield,	Millersville,	3265 Locust St.
Patton, James Herman,	Philadelphia,	3729 Spruce St.
Pealer, Woodin Wesley,	Freeland,	111 S. 34th St.
Pfaff, Jesse Charlton,	Slatington,	120 S. 33d St.
Phelan, Joseph Charles,	Lynn, Mass.,	3913 Woodland Ave.
Poole, Frank Alonzo,	Long Branch, N.J.,	3331 Walnut St.
Price, Richard Coale, Jr.,	Philadelphia,	3615 Locust St.
Quarles, Edward Louis,	Milwaukee, Wis.,	221 De Kalb Square.
Randolph, Edward, A. B. (Haverford),	Philadelphia,	2301 Master St.
Reynolds, Orlando Shay,	Keyser, W. Va.,	3615 Locust St.
Richmond, William E., Jr.,	Buffalo, N. Y.,	Dorm. 226, F.
Rigg, Samuel Baum,	Reading,	3719 Spruce St.
Roberts, James Bray, Ph. B. (De Pauw),	Kansas, Ill.,	3609 Locust St.
Robinson, Benjamin Westley, Jr.,	Philadelphia,	347 Christian St.
Rockwell, George Clark,	Junction City, Ks.,	Dorm. 135, J.
Rogers, Benjamin Woolsey,	New York, N. Y.,	1230 Spruce St.
Rogers, Pennock Browning,	Columbus, Ohio,	102 S. 36th St.
Roller, Benjamin Franklin, B. S. (De Pauw),	Newman, Ill.,	3609 Locust St.
Romig, E Frank, Ph. B. (Scio),	Lorain, Ohio,	204 S. 36th St.
Rowan, Joseph James,	Dubuque, Iowa,	105 S. 34th St.
Rutherford, Robert William,	Philadelphia,	4411 Pine St.
Sampson, William Spoor,	Tunkhannock,	Dorm. 202, A.
Sanborn, Roscoe Ralph,	Los Angeles, Cal.,	3728 Walnut St.
Sankey, Thomas Morton,	Pittsburg,	3702 Spruce St.
Schock, Harvey Earl,	Hamburg,	3316 Walnut St.
Schorse, Richard Frederick,	Milwaukee, Wis.,	Dorm. 428, F.
Scroggs, Joseph James, B. S. (Geneva),	Beaver,	110 S. 33d St.
Scott, George Hoskins,	Butler,	3331 Walnut St.
Scott, John Wallace,	Philadelphia,	Wayne and School Lane, Gtn.
Scully, Eugene Henry,	North Brookfield, Mass.,	215 S. 33d St.
Sharpe, John Semple,	Philadelphia,	4006 Pine St.
Sherwood, Stuart Wakeman,	Westport, Conn.,	Dorm. 410, B.
Shoemaker, John Asher,	Knox,	303 Holly St.
Sickler, John Ralph,	Indianapolis, Ind.,	3309 Walnut St.
Silbernagel, Emile Samuel,	Bastrop, La.,	Dorm. 128, G.
Smith, Kirk E.,	Philadelphia,	3301 Walnut St.
Smith, Walter Horstman,	do.	3327 N. 17th St.
Smith, William Reinhardt, A. B. (Ursinus),	do.	4219 Lancaster Ave.
Snodgrass, Frank Barker, A. B., A. M. (Wooster),	Kenton, Ohio,	3435 Walnut St.

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Name.	Residence.	City Address.
Spayd, Charles Hay,	Harrisburg,	3322 Woodland Ave.
Speese, John,	Philadelphia,	331 E. Chelten Ave., Gtn.
Springer, Harold Love,	Wilmington, Del.,	[810 Washington St.]
Stalberg, Samuel,	Philadelphia,	527 S. 4th St.
Stauffer, Edward Franklin,	Bethel, Mo.,	3420 Sansom St.
Stein, John Reid,	Shenandoah,	3336 Chestnut St.
Stiteler, Charles Irvin,	Anselma,	3107 Baring St.
Stoecks, William August,	Monmouth, Ill.,	3711 Woodland Ave.
Sutliff, Frederick Augustus,	Koonsville,	3432 Sansom St.
Tarbox, Harry Russell,	Bath, Me.,	3704 Walnut St.
Taylor, Horace Furness,	Westtown.	
Teas, John Colwell,	Philadelphia,	3806 Hamilton St.
Tinney, William Scott,	do.	1223 S. Markoe St.
Thomas, Calvin Merrill,	Brewer, Me.,	3741 Spruce St.
Tierney, Michael Frank,	Shenandoah,	Hotel Powelton.
Vail, George Francis,	Hartford, Conn.,	3251 Locust St.
Van Dyke, Joseph Smith, Jr.,	Glassboro', N. J.,	3703 Woodland Ave.
Vedder, Edward Bright, Ph. B. (Rochester),	Chester,	[Crozer Theo. Sem.]
Walton, Louis Stockton,	Altoona,	157 N. 20th St.
Washburn, Clayton Demart,	Lakeview,	3606 Locust St.
White, Charles Peter,	Wilmington, Del.,	[100 Poplar St.]
Wieder, Henry Strauss,	Philadelphia,	2131 N. 15th St.
Wiederhold, Moritz,	do.	2118 Spg. Garden St.
Wilson, Benjamin Gardner,	Clarion,	3419 Walnut St.
Willetts, Ernest Ward,	Pittsburg,	3702 Spruce St.
Wood, Edgar Marsden,	Toronto, Can.,	N. E. Cor. 10th and Spruce Sts.
Woodburn, Wilton,	Rome,	3423 Walnut St.
Young, Thomas Baker,	Wilmington, Del.,	[111 Jefferson St.]
Zimmerman, Oscar,	New Mahoning,	1144 Jackson St.

STUDENTS COMPLETING THE FORMER COURSE IN THE DEPARTMENT AUXILIARY TO MEDICINE.

Anspach, Brooke Melancthon, M.D. (Penna., 1897),	Williamsport,	University Hospital.
Black, William Letcher, B. S. (Westminster, Mo., 1889); M.D. (Penna., 1898),	Chicago, Ill.,	121 S. 34th St.
Brown, Harry McVeagh, M. D. (Penna., 1895),	Philadelphia,	915 S. 49th St.
Doyle, Michael Francis, LL. B. (Penna., 1897),	do.	1729 S. 18th St.
Flynn, John Cajetan,	Salem, N. J.,	29 N. 36th St.
Hirschler, Diana,	Philadelphia,	1822 Willington St.
Vail, James Lindley, M. D. (Penna., 1898),	do.	438 N. 52d St.
Woodward, Edward Blais, M. D. (Penna., 1896),	do.	4222 Chestnut St.

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SPECIAL STUDENTS.

Name.	Residence.	City Address.
Evans, Thomas St. Clair, A. B. (Princeton),	Blairsville,	Dorm. 142, M.
Mourning, Chase Morton,	Louisville, Ky.,	Ridley Park.
Ohlinger, Willard,	Wooster, Ohio,	Dorm. 316, B.

SUMMARY.

Students of the Fourth-year Class,	218
Students of the Third-year Class,	203
Students of the Second-year Class,	176
Students of the First-year Class,	227
Students completing former Auxiliary Course	8
Special Students,	3
Total	835

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LABORATORY OF HYGIENE.

ELEMENTARY BACTERIOLOGY.

Name.	Residence.	City Address.
Balbirnie, Cadwallader Davis Balfour,	Philadelphia,	3443 Walnut St.
Clark, Arthur Wayne, B. S. (Pennsylvania),	Conshohocken.	
Easby, William, Jr., C. E. (Rensselaer Poly. Inst.),	Media.	
Ferris, Francis Scoffin, M.D. (Pennsylvania),	Philadelphia,	1516 Dickinson St.
Gifford, Edward Stewart, M. D. (Pennsylvania),	do.	1733 Ridge Ave.
Gildersleeve, Nathaniel,	Brookston,	Dorm. 435, I.
Laird, Arthur Turner, A. B. (Oberlin),	Hinsdale, Mass.,	Dorm. 435, I.
Mourning, Charles Norton,	Louisville, Ky.,	Ridley Park.
Padgett, Hazle, M. D. (Pennsylvania),	Columbia, Tenn.,	3320 Walnut St.
Pennington, Mary Engle, Ph. D. (Pennsylvania),	Philadelphia,	3908 Walnut St.
Shepard, Charles Carter,	Elgin, Ill.,	140 N. 17th St.
Walsh, Joseph, A.B., A. M. (Fordham), M. D. (Pennsylvania),	Parsons,	124 S. 34th St.
West, Hoyden Austin,	Nashville, Tenn.,	[101 N. 7th St., Camden, N. J.]
Yawger, Nathan Shurts, M. D. (Pennsylvania),	Philadelphia,	5015 Greenway Ave.

PRACTICAL HYGIENE.

Curtis, Frederic Chester,	West Stockbridge, Mass.,	Dorm. 427, F.
Gifford, Edward Stewart, M. D. (Pennsylvania),	Philadelphia,	1733 Ridge Ave.
Laird, Arthur Turner, A. B. (Oberlin),	Hinsdale, Mass.,	Dorm. 435, I.
Montgomery, Beriah Alembart, B. S. (Grove City),	Grove City,	Dorm. 437, I.
Van Gasken, Frances Culbreth, M. D. (Woman's Med.),	Philadelphia,	1132 Spruce St.

SUMMARY.

Students in Bacteriology (Bact.)	14
Students in Practical Hygiene (P. H.)	5
Total	19

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DEPARTMENT OF DENTISTRY.

THIRD-YEAR CLASS.

Name.	Residence.	City Address.
Agnew, William Ernest	Kemptville, Ont., Canada,	4226 Regent Square.
Allen, Frederick William,	Philadelphia,	1624 Wallace St.
Bache, John Hugh Vincent,	Bound Brook, N.J.,	Dorm. 352, F.
Baker, Harry Clark,	Everly, Iowa,	213 S. 33d St.
Baldauf, Leo Walter,	Henderson, Ky.,	3916 Sansom St.
Barber, Arthur D'Alanson,	Ardmore.	
Barton, Walter William,	Little Meadows,	Dorm. 350, F.
Baxter, Andrew Holman,	Philadelphia,	1422 Christian St.
Beattie, Willson Edwards,	Lebanon,	4114 Parkside Ave.
Berlau, Leon,	Paris, Ill.,	3609 Locust St.
Bishop, Burton Frederick,	Westville, Conn.,	3273 Sansom St.
Bisseling, Gerardus Hendrikus, Tandmeester (Utrecht),	Utrecht, Holland,	3314 Walnut St.
Black, James Harper, Jr.,	Williamsport,	3725 Spruce St.
Blattmann, Willy, Zahnarzt (Germany),	Bischweiler i. e., Germany,	3260 Chancellor St.
Blinn, Charles Pratt,	New Milford, Conn.,	Dorm. 393, O.
Bodle, Edwin Schuyler,	Mechlenburg, N. Y.,	202 S. 37th St.
Bravo, Salvador,	Managua, Nicaragua,	3328 Walnut St.
Brooks, John Aston,	Erie,	4064 Irving St.
Burnham, Edward Pleasanton,	Wilmington, Del.,	[828 Washington St.]
Bush, Roy Allen,	New Braintree, Mass.,	3703 Woodland Ave.
Camp, Frederic H,	Bridgeport, Conn.,	210 S. 36th St.
Cardwell, Harold, L. D. S. (England),	Lancaster, Eng.,	3332 Walnut St.
Caro, Eric Adelbert Cecil,	Napier, New Zealand,	211 S. 33d St.
Carshore, William James, Jr.,	Passaic, N. J.,	Dorm. 372, K.
Casalduc y Goicoechea, José Lorenzo,	Ponce, Porto Rico,	3254 Chestnut St.
Chain, Clarence Hollinshead,	Philadelphia,	4047 Aspen St.
Chown, Moon Hung,	Pon Kai Lee, China,	Dorm. 402, A.
Clinger, Frank Wagner,	Milton,	3725 Spruce St.
Comegys, Robert Alexander,	Middletown, Del.,	Dorm. 392, O.
Conard, William T,	Westgrove,	1601 Jackson St.
Conlon, Thomas Joseph,	Fitchburg, Mass.,	225 S. 33d St.
Cook, Audley Brown,	Blairsville,	210 S. 36th St.

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Name.	Residence.	City Address.
Cowee, Albert Warren,	Poughkeepsie, N. Y.,	233 S. 40th St.
Crane, Arthur Barton,	Plainfield, N. J.,	3328 Walnut St.
Cressman, Howard Besson,	Philadelphia,	140 Phil-Ellena St., Germantown.
Crooks, Carl Douglass,	Northampton, Mass.,	3208 Spencer Terrace.
Cush, James Francis,	Scranton,	210 S. 36th St.
Darlington, Lewis Williams,	West Chester,	[318 S. Walnut St.]
Davis, Hardin,	Oswego, N. Y.,	210 S. 36th St.
Dill, Matthew Thompson,	Gettysburg,	3427 Walnut St.
Dilworth, J Warren,	Cossart,	412 N. 32d St.
Dudley, Dudley R,	Lamoni, Iowa,	211 S. 33d St.
Duffy, Michael Alfred,	Scranton,	210 S. 36th St.
Dunlop, Harry, L. D. S. (England),	Kilmarnock, Scot.,	3447 Woodland Ave.
Dunne, Charles Michael,	Oxford, N. Y.,	210 S. 36th St.
Egel, Chauncey Field,	Bound Brook, N.J.,	3326 Walnut St.
Emery William Leas,	Williamsport,	Dorm, 135, J.
Esponda, Zacarias,	Chiapas, Mexico,	4311 Walnut St.
Essig, George Sturges,	Wallingford,	1700 Locust St.
Evans, Wilbur Edwin,	Martinsburg, W. Va.,	3338 Chestnut St.
Feldman, Henry Penrose,	Allentown,	3615 Locust St.
Fletcher, Carleton Americus,	Athol, Mass.,	3929 Baltimore Ave.
Forsbeck, Charles August,	Milwaukee, Wis.,	113 S. 34th St.
Forsyth, John Cubberly,	Allentown, N. J.	3309 Walnut St.
Freeston, John William,	Pottsville,	3328 Walnut St.
Freiot, John Kales,	Bainbridge, N. Y.,	3266 Sansom St.
Fulton, John Gordon,	New York, N. Y.,	3911 Woodland Ave.
Galen, Francis Xavier,	Philadelphia,	905 S. 20th St.
Garland, Alric,	Gloucester, Mass.,	Dorm. 386, M.
Gibbs, John Rice, Jr.,	Somerville, N. J.,	Dorm. 317, B.
Gooding, Reginald Leslie,	Union Hall, Barbadoes,	70 N. 36th St.
Gregg, George Thomas,	Chehalis, Wash.,	210 S. 36th St.
Groth, William Charles Frederick,	New York, N. Y.,	524 S. 20th St.
Haggarty, Richard Joseph,	do.	1523 S. Broad St.
Hartman, William Norman,	Clarksburg, Ont., Can.,	210 S. 36th St.
Hartzell, Franklin Henry,	Philadelphia,	123 N. 11th St.
Hayes, Edward James,	Northampton, Mass.,	Dorm. 433, G.
Hedden, Farquaharson Henry,	Charlton, N. Y.,	Dorm. 389, M.
Herrmann, Alphonse Walker,	Philadelphia,	1351 Germantown Ave.
Heyke, John Ericson,	New Haven, Conn.,	211 S. 33d St.
Hickey, Joseph Garrett,	Auburn, N. Y.,	3604 Walnut St.
Hillegas, Henry Leigh,	Wilmington, Del.,	[907 Hazlett St.]
Holland, Ernest Edward,	Boston, Mass.,	3323 Walnut St.

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Name.	Residence.	City Address.
Howe, Roy Stanley,	Worcester, Mass.,	3814 Spruce St.
Howie, Richard Owen,	Benton, N. B.,	3713 Woodland Ave.
Hutchins, Herbert Oliver,	Greensboro Bend, Vt.,	3258 Walnut St.
Jack, Charles Shoemaker,	Philadelphia,	1533 Locust St.
Jessen, William Boje, Zahnarzt (Germany),	Strassburg, Germany,	3338 Chestnut St.
Johnston, William Thomas,	Williamsport,	Dorm. 453, O.
Jones, Lawrence Henry,	Rome, N. Y.,	3929 Baltimore Ave.
Kennedy, Frank Henry,	Springfield, Mass.,	210 S. 36th St.
King, Marcus,	New York, N. Y.,	620 S. 3d St.
Knott, Frederick William,	Sioux City, Iowa,	210 S. 36th St.
Krebs, John Baker,	Pine Grove Mills,	121 S. 34th St.
Laberdesque, Raphael,	Paris, France,	126 S. 34th St.
Lane, Hiram Herman,	Stockport, O.	223 S. 33d St.
Leaver, Morris Hampton,	Quakertown, N.J.,	125 S. 34th St.
Macy, William Chase,	New Bedford, Mass.,	111 S. 34th St.
Marks, Arthur Robert, L. D. S. (England),	Sydney, Australia,	3344 Walnut St.
Martinez, Julio Rafael,	Guayaquil, Ecuador,	264 S. 38th St.
McCarron, Joseph Marie, A. B. (La Salle),	Philadelphia,	1329 Christian St.
McClain, John Andrew,	Oklahoma City, O. T.,	36 N. St. Bernard St.
McCowen, Charles Stickles,	Wilmington, Del.,	[910 Adams St.]
McKinley, William Finley,	Wheeling, W. Va.,	27 N. 34th St.
McMurray, Charles Thomas,	Fitchburg, Mass.,	225 S. 33d St.
Meisel, Karl, Zahnarzt (Germany),	Munich, Germany,	3338 Chestnut St.
Mercier, Paul, Dentiste Diplomé, Suisse,	Geneva, Switzerland,	3345 Woodland Ave.
Moffitt, John Jordan,	Harrisburg,	3604 Walnut St.
Moore, Arthur John,	Glenburn,	3338 Chestnut St.
Morton, William,	Petersham, Australia,	1418 Christian St.
Mosher, Donald Fitch,	Kansas City, Mo.,	Dorm. 228, G.
Müller, Julius, Zahnarzt (Germany),	Neustadt a. H., Germany,	3266 Locust St.
Newton, Edward Avery,	Oregon City, Ore.,	3316 Woodland Ave.
Noble, Joseph Haderman,	Philadelphia,	3447 Woodland Ave.
O'Bryon, Horace,	do.	2020 N. 13th St.
O'Kane, John Joseph,	Wheeling, W. Va.,	27 N. 34th St.
Owen, Samuel Knapp,	Goshen, N. Y.,	3613 Locust St.
Pache, Francis Louis, Medecin-chiurgien-dentiste (Geneva),	Geneva, Switzerland,	211 S. 33d St.
Park, James Dinwoodie, Jr.,	Duluth, Minn.,	3911 Woodland Ave.
Perkins, Maurice Augustus,	Hampden, Me.,	3202 Baring St.
Phelps, Charles Judson,	Merritton, Canada,	3273 Sansom St.

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Name.	Residence.	City Address.
Probasco, Walter Ellsworth,	Plainfield, N. J.,	3617 Locust St.
Puckey, John Arthur,	Orbisonia,	3234 Lancaster Ave.
Quay, Ralph Ira,	Port Hope, Canada,	3428 Sansom St.
Quirk, John Joseph,	Philadelphia,	822 N. 25th St.
Rawlings, Herschel Devin,	Tacoma, Wash.,	3271 Locust St.
Rawlings, James Windsor,	do.	3271 Locust St.
Reilly, William Bernard,	Williamsport,	3911 Woodland Ave.
Reynolds, Arthur Howard,	Philadelphia,	3445 Woodland Ave.
Rice, Charles Sherburne,	Wilmington, Del.,	[814 Adams St.]
Richards, Newton Bertrand,	Easton,	116 S. 33d St.
Riley, Theodore Augustus,	Geneseo, N. Y.,	Dorm. 395, O.
Ringger, Hans Albert, Zahnarzt (Zurich),	Richtersweil, Switzerland,	123 S. 34th St.
Roberts, Norman Losey,	Manhattan, Kansas,	Dorm. 129, H.
Rood, Vernon Dudley,	Mendham, N. J.,	3258 Walnut St.
Rule, Oliver Trewren,	Meriden, Conn.,	3434 Sansom St.
Ryman, Harry Wells,	Summit, N. J.,	3271 Locust St.
Sager, Albert Edward,	Rochester, N. Y.,	210 S. 36th St.
Scudder, Rhodin Cunningham,	Pasadena, Cal.,	202 S. 37th St.
Shane, Joseph Hackett,	Philadelphia,	2418 Reese St.
Shape, Hermann Louis,	Milwaukee, Wis.,	Dorm. 125, Baldwin.
Shelden, Frank Elwin,	Topeka, Kansas,	Dorm. 228, G.
Siegler, Charles Louis,	Doylestown,	Dorm. 389, M.
Smith, Theodore Victor, Jr.,	Westfield, N. J.,	3609 Locust St.
Stackhouse, Arthur William,	Hull, Quebec, Can.,	305 S. 33d St.
Stafford, John Adelbert,	Buffalo, N. Y.,	436 S. 40th St.
Stanley, John Prince,	Lewiston, Me.,	Dorm. 380, M.
Stevens, Harry Arthur,	San José, Cal.,	208 S. 36th St.
Stimpson, Roy Richardson,	Worcester, Mass.,	3703 Woodland Ave.
Stoughton, Herbert Arlington,	Philadelphia,	600 N. 10th St.
Stuckert, Benjamin Hough,	Allentown,	225 S. 33d St.
Sutherland, William Robert,	Huntingdon, Quebec, Can.,	3423 Walnut St.
Taussig, Ernst, Dr. Med. (Prague),	Prague, Austria,	3316 Walnut St.
Taylor, Richard Porter,	Duke, Ga.,	3430 Sansom St.
Tewksbury, Walter Beardsley,	Tunkhannock,	3715 Woodland Ave.
Vaughan, Harold Stearns,	Brooklyn, N. Y.,	3911 Woodland Ave.
Vaughan, Henry George,	do.	3727 Spruce St.
Waechter, John Louis,	Philadelphia,	811 Randolph St.
Wallace, Albert Howard,	Montclair, N. J.,	Dorm. 125, F.
Walter, William Ross,	Harrisburg.	Dorm. 308, A.
Watters, William John,	Akron, Ohio,	116 S. 33d St.
Weber, Henry Louis, Chirurgien-Dentiste (Paris),	Paris, France,	The Bartram.
Weinblit, Joseph Abraham,	Kursk, Russia,	532 Manton St.
Weiser, Martin Luther,	York,	3715 Powelton Ave.
Weston, Charles Albert, B. L. (Dartmouth),	Windsor, Vt.,	3422 Sansom St.

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Name.	Residence.	City Address.
Wetzel, Robert Martin, Chirurgien-Dentiste (Paris),	Baden, Switzerland,	3419 Walnut St.
White, Harry Franklin,	Blossvale, N. Y.,	Dorm. 350, F.
Williams, Howard Scott,	Meriden, Conn.,	3434 Sansom St.
Winne, Charles Israel,	Essex, Conn.,	3434 Sansom St.
Wisler, Edwin Clarence,	Philadelphia,	2254 N. Broad St.
Witham, Robert Jacob,	do.	1812 Camac St.
Wright, William Gilbert,	do.	2334 S. 11th St.
Yeiser, Luther Alfred,	Schuylkill Haven,	3609 Locust St.
Zamora, José Salomon,	Leon, Nicaragua,	3337 Woodland Ave.

SECOND-YEAR CLASS.

Anderson, James Washington, Jr.,	Philadelphia,	1409 Ellsworth St.
Apablasa, Cayetano, John,	Los Angeles, Cal.,	213 S. 33d St.
Bailey, Frank Warren,	Fairbrook,	121 S. 34th St.
Bailey, Harry Ward,	Mansfield,	221 S. 33d St.
Barricklow, Harry Watters,	Dunbar,	223 S. 33d St.
Bennett, Ralph Lockey,	St. Johnsbury, Vt.,	3902 Baltimore Ave.
Bernard, Adolph Clay,	Jeanerette, La.,	3232 Lancaster Ave.
Bertolet, Charles Schaeffer,	Fleetwood,	4403 Chestnut St.
Bicknell, Henry, A. B. (Oberlin),	Honolulu, Hawaiian Islands,	Dorm. 361, I.
Birs, Eli Joseph,	Carbondale,	3637 Locust St.
Boice, Archibald Evans,	Griggstown, N. J.,	111 S. 34th St.
Bolte, Richard Waldemar,	Berlin, Germany,	4051 Locust St.
Booker, Frank Daniel, A.B. (Bowdoin),	Brunswick, Me.,	3332 Lancaster Ave.
Blatner, LeRoy Solomon,	Albany, N. Y.,	Dorm. 149, O.
Boulter, Wm. Ernest,	Street, England,	3475 Sansom St.
Britton, Thomas Vassar,	Flemington, N. J.,	3446 Chestnut St.
Brogan, John Joseph,	Scranton,	3729 Spruce St.
Brownell, John,	Philadelphia,	1324 N. 53d St.
Burger, William John,	Rochester, N.Y.,	3264 Sansom St.
Bushong, John M,	Philadelphia,	4115 Leidy Ave.
Cabeen, Joshua Dale,	Aledo, Ill.,	3328 Walnut St.
Cameron, Samuel Pollock,	Houtzdale,	210 S. 36th St.
Carmany, William Cyrus,	Philadelphia,	366 Green Lane, Roxb.
Chapman, John Hobart,	Westerly, R. I.,	3429 Woodland Ave.
Clark, Arthur Judson,	Watertown, N. Y.,	3346 Walnut St.
Clark, John Francis,	Springfield, Mass.,	3202 Summer St.
Clifton, Robert Hirons,	Clayton, Del.,	3328 Walnut St.
Cole, Montyloo Appleby,	Sherbrooke, Canada,	3244 Locust St.
Conklin, William Judson,	Frenchtown, N. J.,	116 S. 33d St.
Cook, Richard John,	Philadelphia,	1410 S. 9th St.
Coombs, Walter Johnston,	do.	429 S. 40th St.
Corley, Roy Franklin, A. B. (Iowa Wesleyan),	Grinnell, Iowa,	3328 Walnut St.

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Name.	Residence.	City Address.
Courtney, Joseph Clarence,	Philadelphia,	121 Herman St., Gtn.
Crago, John Moore,	Scranton,	3741 Spruce St.
Cross, George Burns	Windsor, Vt.,	126 S. 34th St.
Crowe, Richard Daniel,	Bangor, Me.,	3704 Spruce St.
Dager, Charles Andrew,	Norwich, Canada,	124 S. 34th St.
Damuth, Lester Blaine,	Thurmont, Md.,	3637 Locust St.
Dancy, Charles Carroll,	Tarboro, N. C.,	3615 Locust St.
Davis, Walter William,	Medford, Mass.,	Dorm. 396, O.
De Haven, Frank Pierce,	Liverpool,	3447 Woodland Ave.
De Sola, Solomon,	Barranquilla, U. S. of Colombia,	211 S. 33d St.
Devereaux, Ambrose Henry,	New Haven, Conn.,	3417 Walnut St.
Dickson, Walter Elmer, A. B. (Westminster),	Midway,	122 S. 34th St.
Downing, Vivian Francis,	Poughkeepsie, N. Y.,	122 S. 34th St.
Dunsmore, Robert James,	Philipsburg,	3443 Woodland Ave.
Du Plaine, Benoni Charbonette, Jr.,	Philadelphia,	1825 N. 18th St.
Edger, William Stokely,	Philadelphia,	1426 McKean St.
Edwards, William Arthur,	Los Angeles, Cal.,	213 S. 36th St.
Endelman, Julio,	Asnieres, France,	211 S. 33d St.
Foster, Roland Howard,	Chester,	[701 W. 7th St.]
Free, George G,	Waterford,	Dorm. 502, F.
Gaston, Lloyd Henry,	Freemansburg, W. Va.,	3271 Sansom St.
Gerber, Oscar George,	East Orange, N. J.,	3446 Chestnut St.
Gibson, Arnold Edward,	Toowoomba, Australia,	3423 Walnut St.
Gilbert, Alfred Hyde,	San Diego, Cal.,	3615 Locust St.
Graham, George Wilbert,	Rochester, N. Y.,	3261 Sansom St.
Gribble, Oak S,	West Union, W. Va.,	3263 Locust St.
Griffin, Truman Alvah,	Macomb, Ill.,	225 S. 33d St.
Haag, Frederick, Jr.,	Philadelphia,	801 N. 24th St.
Haines, Martin Van Buren,	Brooklyn, N. Y.,	3304 Woodland Ave.
Harlan, Houston,	Wilmington, Del.,	[1105 West St.]
Herwig, Conrad Augustus,	Hazleton,	Dorm. 501, F.
Hickox, Charles Frederick,	Westerly, R. I.,	3429 Walnut St.
Holmes, Harry Clay,	Binghampton,	116 S. 33d St.
Hunter, Harry C, A. B. (Washington and Jefferson)	Greensburg,	3261 Woodland Ave.
Hurewitch, Chaim,	Riga, Russia,	3246 Locust St.
Jacobson, Marcus Samuel,	Syracuse, N. Y.,	3269 Locust St.
Jarman, Albert Wade,	Millville, N. J.,	Dorm. 229, G.
Jefferis, Charles Robinson, Jr.,	Wilmington, Del.,	1618 Arch St.
Johnston, William Wallace,	Bethlehem,	221 S. 33d St.
Kearney, William Stone,	McKeesport,	3715 Spruce St.
Kiesel, Albert George,	Scranton,	3729 Spruce St.
Kilpatrick, John James,	Connellsville,	108 S. 33d St.

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Name.	Residence.	City Address.
Knocke, Clarence Hill,	Philadelphia,	2011 E. Cumberland St.
Kraenzlein, Alvin Christian,	Milwaukee, Wis.,	1204 S. 46th St.
Lacayo, Virgilio,	Granada, Nic.,	3417 Walnut St.
Ladue, Alvah Daniel,	Nashua, N. H.,	3428 Sansom St.
Laing, Harold Bower,	Kemptville, Can.,	204 S. 36th St.
Landau, Max,	New York, N. Y.,	3246 Locust St.
Laue, Gilbert Forbes,	Whaleyville, Va.,	3332 Lancaster Ave.
Lavayen, Raul Sixto,	Guayaquil, Ecuador,	264 S. 38th St.
Lee, Alfred Pyle,	Philadelphia,	1229 S. 47th St.
Lord, Clifton Ernest,	Nashua, N. H.,	3428 Sansom St.
Mansel, Bernard H,	Williamsport,	3439 Woodland Ave.
McCloughan, George Howard,	Swartswood, N. J.,	3326 Walnut St.
McGrath, Hubert Patrick,	Scranton,	214 S. 37th St.
McKay, Frederick Sumner,	Boston, Mass.,	3816 Spruce St.
McKay, Walter Warner,	San Diego, Cal.,	3615 Locust St.
McMahon, Philip John,	Windsor, Vt.,	3419 Walnut St.
Meaker, Stanleigh Reeve,	Auburn, N. Y.,	115 S. 34th St.
Minster, William Lea,	Philadelphia,	3856 Brown St.
Miskey, John Adams,	do.	N. E. Cor. 18th and Arch Sts.
Moliner, Alberto Remigio, A. B. (Havana),	Paris, France,	211 S. 33d St.
Moore, Charles Samuel,	Philadelphia,	4707 Windsor Ave.
Morehouse, Harry Lyman,	Council Bluffs, Iowa,	3271 Locust St.
Morin, Etienne Charles Louis, M. D. (Paris),	Paris, France,	4051 Locust St.
Moyer, Mason Kock,	Orwigsburg,	3326 Walnut St.
Myers, George Washington,	Lykens,	3265 Locust St.
Newell, Harman,	Haverhill, N. H.,	3419 Walnut St.
Noble, Walter Rufus,	Philadelphia,	3447 Woodland Ave.
Nottage, George Hawthorne,	Portland, Oregon,	3258 Walnut St.
Nyman, Uno Isac Andreas,	Linkoping, Sweden,	113 S. 34th St.
Oglesby, Samuel,	Chester,	[402 E. 4th St.]
Osborn, Howard Baldwin,	Passaic, N. J.,	122 S. 34th St.
Parker, Harry Jonathan,	Bridgeton, N. J.,	3929 Baltimore Ave.
Patterson, John Edward,	New York, N. Y.,	3250 Sansom St.
Powelson, Harry Doty,	Bound Brook, N.J.,	3326 Walnut St.
Rausenberger, Charles William,	Philadelphia,	6374 GermantownAve
Reel, Leidy Rodger,	Scranton,	3913 Woodland Ave.
Reese, Daniel Scott,	Park Place,	3326 Walnut St.
Robinson, William Thompson,	Freehold, N. J.,	Dorm. 363, I.
Rothermel, George Schaeffer,	Fleetwood,	3643 Locust St.
Rumford, Lewis,	Wilmington, Del.,	Dorm. 438, K.
Santom, Frederick George,	Worcester, Mass.,	3302 Lancaster Ave.
Savage, George Arthur,	do.	124 S. 40th St.

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Name.	Residence.	City Address.
Schlegel, George Solomon,	Reading,	Dorm. 252, O.
Sebold, Francis Charles,	Auburn, N. Y.,	115 S. 34th St.
Seifert, Edward Otto,	McKeesport,	3715 Spruce St.
Sherry, Ernest,	Königsberg, Germany,	3322 Woodland Ave.
Simpler, Robert Allen,	Philadelphia,	4235 Haverford Ave.
Sinclair, Norman P,	Kennett Square,	157 N. 20th St.
Skinner, Wilson Mackay,	Phillipsburg, N. J.,	9 N. 36th St.
Smith, Howard Sedgwick,	Newark, N. J.,	9 N. 36th St.
Snider, Isaac Garrison,	Brockport, N. Y.,	3618 Powelton Ave.
Snover, James Burton,	Doolittle,	Dorm. 119, E.
Sparks, Alexander Muntroe,	Philadelphia,	752 N. 40th St.
Sprout, Boyd Baker, B. S. (Dickinson),	Burlingame,	[Delanco, N. J.]
Stathers, Frederick Russell,	Weston, W. Va.,	3902 Baltimore Ave.
Sutphen, John Doane,	Lancaster, Ohio,	223 S. 33d St.
Taft, Eugene Stratton, Jr.,	Greenfield, Mass.,	Dorm. 501, F.
Taft, William Elijah,	Worcester, Mass.,	3420 Sansom St.
Thatcher, Arthur Gilbert, A. B. (Oberlin),	Oberlin, Ohio,	3603 Sansom St.
Thompson, Charles Hudson,	Middletown, N. Y.,	3613 Locust St.
Tonkin, Samuel Edgar,	Wilkesbarre,	123 S. 34th St.
Trostel, Henry Elmer,	York Springs,	Dorm. 446, M.
Turner, William Ezekil,	Austin, Texas,	3347 Woodland Ave.
Uffenheimer, Walter Edmund,	Concord, N. H.,	3960 Pine St.
Utley, Fred Alton,	Carbondale,	3316 Woodland Ave.
Wagner, Frederic Rick,	Mahanoy City,	3346 Walnut St.
Walden, George Fisher,	Riverside, Conn.,	3741 Spruce St.
Wallace, William Edward,	Ottawa, Canada,	204 S. 36th St.
Webster, Arthur Frederick,	Buenos Ayres, Argentine Republic,	3419 Walnut St.
Weeks, Stephen Merrill,	Orford, N. H.,	3902 Baltimore Ave.
Wheeler, Aurelius Finch,	Worcester, Mass.,	3420 Sansom St.
Wheeler, William Bradley,	Westport, Conn.,	Dorm. 369, K.
Whitten, Frederick Trevor,	Slippery Rock,	Dorm. 384, M.
Wiley, William Herbert,	Lancaster,	210 S. 36th St.
Wilkinson, John, Jr.,	Philadelphia,	2032 Bainbridge St.
Williams, Percy Norman,	W. London, Eng.,	Dorm. 229, G.
Wright, Edward Vincent,	Philadelphia,	666 N. 39th St.
Zook, John Miller, Jr.,	do.	1728 N. 19th St.

FIRST-YEAR CLASS.

Able, Arthur Garfield,	Frenchtown, N.J.,	116 S. 33d St.
Andrews, Percy William,	Pittston,	Dorm. 202, A.
Baldwin, James Pierce,	Los Angeles, Cal.,	Dorm. 409, B.
Balmer, Thomas Albert,	L'Anse, Mich.,	4901 Greenway Ave.
Banks, George Herbert,	Guilford, Conn.,	3417 Walnut St.

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Name.	Residence.	City Address.
Barnard, John Earl, Ph. B. (Oberlin),	Oberlin, O.,	3603 Sansom St.
Bartlett, Jerome Fulliam,	Muscotine, Iowa;	121 S. 34th St.
Bay, Harry,	Philadelphia,	2135 E. Dauphin St.
Beckwith, William Howard Heartz,	Bridgetown, N. S., Can.,	225 S. 33d St.
Beisel, Charles,	Hazleton,	Dorm. 390, M.
Blackmon, William Henry,	Rochester, N. Y.,	Dorm., 424, E.
Blymyer, George Weyand,	Bedford,	3349 Woodland Ave.
Bolte, Albert Ludwig,	Berlin, Germany,	4051 Locust St.
Bonneville, George Walter,	Greenfield, Mass.,	3608 Locust St.
Brady, Louis Alvah,	Rochester, N. Y.	3806 Spruce St.
Broderick, William Patrick,	St. John, N.B., Can.,	126 S. 34th St.
Buchanan, Thomas, Jr.,	Philadelphia,	3316 Haverford Ave.
Buckeridge, Edmund,	Nelson, New Zealand,	213 S. 33d St.
Butler, William Nelson,	Santa Barbara, Cal.	1627 Mt. Vernon St.
Calcott, Reid,	St. Catherines, Canada,	3273 Sansom St.
Carroll, James Michael,	Binghampton, N.Y.,	3347 Woodland Ave.
Chamberlain, Charles Decker,	Kingston, N. Y.,	3427 Walnut St.
Childs, William Hesser,	Jersey Shore,	27 N. 34th St.
Christian, William Henry,	Philadelphia,	1725 Ludlow St.
Clark, Ross Armstrong,	Belleville, N. Y.,	122 S. 34th St.
Cochran, Victor,	Middletown, Del.,	4619 Woodland Ave.
Coll, Francis Benedict,	Philadelphia,	1244 S. Broad St.
Creveling, William Boyd,	Washington, N. J.,	215 S. 33d St.
Cummings, Guy Austin,	Ware, Mass.,	3422 Sansom St.
Curtis, William Budd,	Philadelphia.	4028 Spring Garden St.
Damron, Frank B.,	Matoomb, Ill.,	225 S. 33d St.
Davenport, Fuller Levi,	Plymouth,	3423 Walnut St.
Davidson, Herbert Alonzo,	Leicester, Mass.,	3606 Locust St.
Davis, Charles Griffith,	Plainfield, N. J.,	Dorm. 235, I.
Davis, George Eugene,	Oswego, N. Y.,	3328 Walnut St.
Deck, Ernest Feild,	Sydney, Australia,	732 N. 40th St.
De Long, David William,	Bowers,	12 S. 34th St.
Denius, Samuel Franklin,	Mifflinburg,	3338 Chestnut St.
De Wees, Roy Huestis,	Philadelphia,	1420 St. James Terrace.
Dickinson, Charles Augustus,	Brookston,	3703 Woodland Ave.
Diedling, Harry Mitchell,	Catskill, N. Y.,	3608 Locust St.
Dietz, Charles Frederick,	Lock Haven,	3933 Baltimore Ave.
Dolan, Claude Martin,	Greene, N. Y.,	221 S. 33d St.
Doskow, Samuel,	Philadelphia,	434 Lombard St.
Duryee, Edward Combs,	Freehold, N. J.,	3701 Woodland Ave.
Easton, William David,	Rockland, Mass.,	Dorm. 351, F.
Eckman, Horace Milton,	Philadelphia,	624 N. 22d St.
Edelman, George Leo,	Rochester, N. Y.,	3349 Woodland Ave.
Erwin, Joseph,	Bethlehem,	221 S. 33d St.
Faught, Francis Ashley,	Philadelphia,	Wissahickon Heights.

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Name.	Residence.	City Address.
Fine, William Middleton,	Trenton, N. J.,	3258 Walnut St.
Fison, Harry Killick,	Peace Dale, R. I.,	3412 Sansom St.
Flanagan, Joseph Edward,	Worcester, Mass.,	213 S. 33d St.
Fowler, Charles S,	Watertown, N. Y.,	122 S. 34th St.
Fox, Frank Anthony,	Philadelphia,	1214 Master St.
*Gabites, Fred Charles Montague,	Timaru, New Zealand.	
Gay, Clyde Wellington,	Pottsville,	3609 Locust St.
Gispert, Frederico,	Matanzas, Cuba,	3337 Woodland Ave.
Gorman, John Joseph Henry,	Ottawa, Canada,	204 S. 36th St.
Graham, Hamilton Malcolm,	Kennett Square,	218 De Kalb Square.
*Grushlaw, Sam,	Libau, Russia,	418 S. 5th St.
Guerrero, Serrano Alberto,	Mexico, Mexico,	3328 Walnut St.
Habben, Harry,	Patterson, N. J.	Dorm. 248, N.
Hall, Benjamin Serajah,	Colchester, Conn.,	3425 Walnut St.
Hall, Ernest Lockwood, A. B. (Bowdoin),	N. Bridgeton, Maine,	3334 Walnut St.
Hammond, Howard Ephraim John,	Auburn, N. Y.,	3250 Sansom St.
Hare, Richard Joseph,	Ashburnham, Mass.,	225 S. 33d St.
Harrison, Charles,	E. Liverpool, Ohio,	3336 Walnut St.
Hartzell, Isaac Myer,	Youngstown, Ohio,	3443 Walnut St.
Hauk, William Eslen,	Lehighton,	3316 Woodland Ave.
Hayward, Ralph Eldredge,	Providence, R. I.,	3427 Walnut St.
Heap, James Edward,	do.	3427 Walnut St.
Heath, Albert Edward,	Wilkesbarre,	3707 Walnut St.
Hinkle, Edgar Daniel,	Littlestown,	3608 Spruce St.
Horner, John M	Pittsfield,	3273 Sansom St.
Houck, Harry Martin,	Berwick,	3701 Woodland Ave.
Houck, John Wesley,	do.	3701 Woodland Ave.
Ivy, Robert Henry,	Shanghai, China,	Lansdowne.
Jackson, Clifford Lourie,	Osceola Mills,	3704 Walnut St.
Jenks, Louis Arnold,	Syracuse, N. Y.,	3269 Locust St.
Jessop, John Harry,	Shickshinny,	28 N. 42d St.
Joslin, Manley Arthur,	Slingerlands, N. Y.,	219 S. 33d St.
Joslyn, Lloyd,	Richmondville, N. Y.,	211 S. 33d St.
Jordan Stanley Livingston,	Williamsport,	Dorm. 394, O.
Kattermann, Emil George,	Frankenberg, Saxony, Germany,	3434 Sansom St.
Keaveny, Patrick Henry,	Wilmington, Del.,	[1202 West St.]
Kelchner, Frederick Victor,	Fleetwood,	12 S. 34th St.
Kelley, John Hopkins,	Philadelphia,	602 N. 39th St.
Kennedy, Albert Rutherford,	Laurence, Kansas,	3711 Woodland Ave.
Keyser, Albert Marion,	Philadelphia,	1520 S. 13th St.
Kingsley, Harry Bailey,	Mansfield,	221 S. 33d St.
Knelly, Edgar C,	Conyngham,	3217 Woodland Ave.

*Not in attendance.

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Name.	Residence.	City Address.
Kraft, Paul,	Darmstadt, Germany.	123 S. 34th St.
*Kronemann, Jones Otto Arthur,	Frankfurt, Germany.	
Kuhnmuench, Andrew Jacob,	Milwaukee, Wis.,	217 S. 33d St.
Lane, Cameron Erb,	Oregon,	3447 Woodland Ave.
Lavelle, Walter Beale,	Philadelphia,	525 Cross St.
Lehr, John Henry,	Lykens,	3265 Locust St.
Lillis, Martin James,	Jersey City, N. J.,	Dorm. 129, H.
Lummis, Herbert Warren,	Cedarville, N. J.,	3715 Woodland Ave.
Lummis, Warren Cleveland,	Bridgeton, N. J.,	3715 Woodland Ave.
Macdonald, Foster Barber,	Oliver's Mills,	3935 Baltimore Ave.
Mann, Albert English,	Brantfort, Ont., Can.,	111 S. 34th St.
Mazeine, Raymond,	New Haven, Conn.,	3417 Walnut St.
McDermott, Cornelius Charles,	Philadelphia,	1634 Cherry St.
McDonald, William Bernard,	Geneva, N. Y.,	3347 Woodland Ave.
McGoff, Walter Henry,	Nashua, N. H.,	3330 Lancaster Ave.
McLain, Charles Bates,	Wheeling, W. Va.,	217 S. 33 St.
Mead, Frank Herbert, A. B. (Bowdoin),	Bridgton, Me.,	3334 Walnut St.
Means, Thomas Kerr,	Geneva, N. Y.,	3254 Sansom St.
Mease, George Washington,	Lebanon,	3419 Walnut St.
Meza, Francisco Calixto, Jr.,	Sao Paulo, Brazil,	3328 Walnut St.
Mierley, Clyde Vernon,	Alexandria,	206 S. 36th St.
Miller, Harry Conrad,	Hazleton,	3302 Lancaster Ave.
Moenck, Demetrio Henry,	Havana, Cuba,	126 S. 34th St.
Molyneaux, Orville James,	Overton,	3266 Sansom St.
Moore, Thomas Thompson, Jr.,	Columbia, S. C.,	3727 Spruce St.
Mosher, Arthur Henry,	Granville, N. Y.,	3263 Locust St.
Nailos, John Louis,	Waterloo, N. Y.,	205 S. 33d St.
O'Brien, John Aloysius,	Philadelphia,	42 E. Washington Lane, Gtn.
O'Donnell, Patrick X,	Drifton,	3306 Melon St.
Olson, William,	Duluth, Minn.,	3933 Baltimore Ave.
Osmun, Leighton Graves,	Glen Ridge, N. J.,	Dorm. 102, A.
Otero, George,	Havana, Cuba,	3344 Walnut St.
Otero, Jose Manuel,	do.	3344 Walnut St.
Palmer, Robert Bryant,	Carmel, N. Y.,	3615 Locust St.
Pedro, Juan Luis,	Havana, Cuba,	126 S. 34th St.
Phillips, Merritt Flint,	Sacket Harbor, N. Y.,	122 S. 34th St.
Pinkerton, Burton Le Roy,	Fountain Springs,	1619 Vine St.
Quin, Walter Sarsfield,	Bridgeport, Conn.,	121 S. 34th St.
Read, Frank, Jr.,	Rosemont,	435 Chestnut St.
Reber, John Henry,	Wernersville,	3328 Walnut St.

* Not in attendance.

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Name.	Residence.	City Address.
Reed, Edward Rumford,	Beverly, N. J.,	2152 Marston St.
Reynolds, Francis Bernhard,	So. Amenia, N. Y.,	3314 Walnut St.
Reynolds, Harry Lorenzo,	Ardmore.	
Rice, Albert Curtis,	Northampton, Mass.,	3330 Lancaster Ave.
Ripley, Louis Homer,	Winchester, N. H.,	3338 Lancaster Ave.
Sadler, Horace Trickett,	Carlisle,	
Sapp, Harry Antrim,	Philadelphia,	1843 Franklin St.
Schreiber, William Leo, Jr.,	do.	1632 S. 13th St.
Schultz, Edward M,	Danville,	4018 Spruce St.
Scranton, James Burdette, Jr.	New Haven, Conn.,	210 S. 36th St.
Sewell, Ernest Roy,	Fredericton, N. B., Can.,	3719 Spruce St.
Shannon, William Richard,	Steubenville, O.,	3260 Chestnut St.
Sharp, Everett Thomas,	Seneca Falls, N. Y.,	3255 Locust St.
Sides, Samuel Reuel,	Philadelphia,	618 N. 32d St.
Simpson, J Heber,	Thornburg, Ont., Can.,	3321 Walnut St.
Simpson, Joseph Irving,	Goshen, N. Y.,	3613 Locust St.
Slade, Arthur Roland,	Vineland, N. J.,	3260 Chancellor Place
Smith, George Millard,	Zanzibar, E. Africa,	3423 Walnut St.
Smith, Luther J,	Waterford, N. Y.,	3248 Sansom St.
Spencer, Hosmer Wright,	Pleasant Mount,	125 S. 37th St.
Spencer, Scott Bush,	do.	125 S. 37th St.
Stebbins, Arthur Le Baron,	Colchester, Conn.,	3425 Walnut St.
Telford, George,	Valens, Ont., Can.,	215 S. 33d St.
Ten Eyck, Edward Hanlon,	Worcester, Mass.,	3801 Spruce St.
Teufert, John Frederick,	Berlin, Germany,	125 S. 34th St.
Tewksbury, Alfred Foster,	Lewiston, Me.,	Dorm. 351, F.
Thomas, Caleb Dright,	Lansford,	3267 Woodland Ave.
Twiggar, Vernon Burgar,	Sing Sing, N. Y.,	3338 Chestnut St.
Van Buskirk, Harry White,	Belvidere, N. J.,	3613 Locust St.
Van Loan, Morton,	Athens, N. Y.,	3706 Locust St.
Wallace, Charles Edgar, Jr.,	Chesterfield, N. J.,	3309 Walnut St.
Wallace, Fred Lewis,	Asbury Park, N. J.,	Dorm. 352, F.
Wallace, Louis Guest,	Camden, N. J.,	(319 Penn St.)
Walter, Young Singleton,	Mauch Chunk,	3267 Woodland Ave.
Wasley, Leon Tucker,	Shenandoah,	3338 Chestnut St.
Watkins, Clarence Aubrey,	Philadelphia,	1437 N. 16th St.
Weaver, Herbert Marshall,	Hespeler, Ont., Can.,	3608 Locust St.
Weber, Louis Guillaume,	Paris, France,	"The Bartram."
Weidner, William Herold,	Milwaukee, Wis.,	217 S. 33d St.
Welch, John Dryden,	Middletown, Conn.,	126 S. 34th St.
Welch, Ray Walter,	Morristown, N. J.,	3260 Chancellor Place.
*Wetzel, Daniel Hart,	Norristown,	[824 De Kalb St.].
White, William Dwight,	Wilkesbarre,	3935 Baltimore Ave.
Winter, Henry Buhl,	Altoona,	3423 Walnut St.

* Not in attendance.

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Name.	Residence.	City Address.
Wolcott, Clayton Prouty,	Greenfield, Mass.,	Dorm.
Wölfle, Theodore Harold,	Philadelphia,	1850 N. 11th St.
Woodley, Frank Ellis,	Hughesville,	215 S. 33d St.
Woolley, Owen,	Elberon, N. J.,	3447 Woodland Ave.
Wright, Wilson, Jr.,	Philadelphia,	1810 Chestnut St.
Wyckoff, William,	Belvidere, N. J.,	3613 Locust St.
Yocum, John Paul,	Harrisburg,	3322 Woodland Ave.

SPECIAL STUDENTS.

Erwin, John, D.D. S., (Pennsylvania),	Bethlehem,	221 S. 33d St.
Peter Henry Herman,	Philadelphia,	3952 Pine St.
Wade, Thomas Brian, D. D. S. (Pennsylvania),	Champaign, Ill.,	3727 Spruce St.

SUMMARY.

Students of the Third-year Class	164
Students of the Second-year Class	152
Students of the First-year Class	183
Special Students	3
Total	502

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DEPARTMENT OF VETERINARY MEDICINE.

POST GRADUATE CLASS.

Name.	Residence.	City Address.
Martien, Henry Dunbar, V. M. D. (Pennsylvania),	Philadelphia,	728 N. 42d St.
Ranck, Edward Martin, V. M. D. (Pennsylvania),	do.	427 N. 41st St.
Shaw, William George, V. M. D. (Pennsylvania),	do.	2004 Pine St.
Weinberg, Herman Henry, V. M. D. (Pennsylvania),	do.	1305 Marshall St.

THIRD-YEAR CLASS.

Cheney, Liberty Lyon, B. S. (Mass. Agr. Coll.),	Southbridge, Mass.,	3471 Sansom St.
Gelbert, Charles Saladin,	Scranton,	3336 Chestnut St.
Hoopes, Herbert,	Bynum, Md.,	Vet. Hospital.
Jacob, Moses,	Honesdale,	Vet. Hospital.
Keiter, Clinton Foster,	Williamstown,	114 S. 33d St.
Kern, Albert George,	Knoxville, Tenn.,	3418 Sansom St.
Kirby, Bassett,	Woodstown, N. J.	
Miller, John Philip,	Lebanon,	3349 Market St.
Newcomer, Ezra Weidman,	Mount Joy,	3414 Sansom St.
Seeley, Oscar,	Philadelphia,	Bingham House.
Taylor, Frederick,	Sewickley,	3414 Sansom St.
Townsend, Norris Lambson,	Camden, Del.,	3607 Locust St.

SECOND-YEAR CLASS.

Andress, William Russell,	Philadelphia,	2604 Ridge Avenue.
Cornman, Ernest Linwood,	Gladwyne.	
Davison, Richard Young,	Morton.	
Horner, Glenn Washington,	Finksburg, Md.,	436 S. 40th St.
Hughes, William,	Harrisburg,	Dorm. 404, A.
Mayer, Henry Nichols,	Pittsburg,	3649 Woodland Ave.
Nolan, Lawrence Andrew,	Baltimore, Md.,	32 N. 37th St.
Phillips, William Edgar, B. S. (Bucknell),	Norristown.	
Powell, Edgar W,	Newtown Square.	
Stehle, Frederick, Jr.,	Philadelphia,	4272 Ridge Ave.
Tallman, Bertran Harrison,	Farragut,	3649 Woodland Ave.
White, Thomas,	Philadelphia,	1210 S. 28th St.
Young, Hulbert,	Washington, D. C.,	4410 Pine St.

FIRST-YEAR CLASS.

Bader, Joseph, Jr.,	Philadelphia,	126 N. 15th St.
Bassler, Harry Chain,	do.	3219 Haverford St.
Bender, Harry Ellsworth,	Lititz,	2361 Bouvier St.
Carlisle, Thomas Smith,	Philadelphia,	8425 Main St., Chestnut Hill.
Colton, Charles Louie,	Englewood, N. J.,	Dorm. 111, C.

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Name.	Residence.	City Address.
Dunbar, Boulden Biddle,	Elkton, Md.	
Dunn, Harry Elmer,	Erie.	3336 Chestnut St.
Feigenbaum, Hyma Aaron,	Pittsburg.	
Gilliland, Samuel Howard,	Marietta,	3615 Locust St.
Hart, Lawrence Sylvester,	Philadelphia,	2577 Amber St.
Hart, Vincent Augustus,	do.	2577 Amber St.
Hayman, John Wilbur,	Rohrsburg,	3346 Lancaster Ave.
Norton, Oscar Meredith,	Aldenville,	3336 Chestnut St.
Rivers, Reuben,	North Wales.	
Seidel, Edward,	Bryn Mawr.	
Shore, Chalmer Scott,	Hubelsville,	125 S. 34th St.
Walter, Charles Robert,	Conyngham,	3346 Lancaster Ave.
Watson, Harry William,	S. Waterford, Me.,	3414 Sansom St.
Willett Frederick Clark,	Morristown, N. J.,	3711 Woodland Ave.
Woodward, Frank Jobson,	Lima.	

SPECIAL STUDENT.

Ryder, Daniel, V. S. (Ontario),	Chambersburg,	3439 Woodland Ave.

SUMMARY.

Students of the Post Graduate Class	4
Students of the Third-year Class	12
Students of the Second-year Class	13
Students of the First-year Class	20
Special Student	1
Total	50

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DEGREES, HONORS AND PRIZES.
1898.

At a public Commencement held on WEDNESDAY, JUNE 8, 1898, the following Degrees were conferred:

HONORARY DEGREES.

Doctor of Letters..... Agnes Irwin.
Doctor of Science..... Prof. George Frederick Barker.
Doctor of Divinity..... Rt. Rev. Wm. Neilson McVickar.
Doctor of Laws..... Rt. Rev. Ozi William Whitaker.

DEGREES IN COURSE.

IN THE COLLEGE FACULTY.

Bachelor of Arts:

Jasper Yeates Brinton,
Fitch Culbertson Bryant,
Sumner Hayford Cross,
George Elliott, Jr.,
Arthur Howell Gerhard,
Edward William Hope,
Elias Wilbur Kriebel,
James Heidel Langstroth,
Walker Moore Levett,
Horace Craig Longwell,
William Adams McClenthen,
Daniel Ernest Martell,
Isadore Merzbacher,
William Ferdinand Meyer,
Coleman Sellers Mills,
John Alvin Orr,
George Hiram Swift,
Paul Watson.

Bachelor of Science:

Albert Russell Bartlett,
Joseph Percy Bell,
Burton Scott Easton,
John Louis Haney,
Alvin Cassel Kriebel,
David Liknaitz,
George Lewis Mayer,
Francis Forbes Milne, Jr.,
Francis Sims McGrath,
Frederick Logan Paxson,
Ralph Pemberton,
Percival Taylor Rex,
Abraham S Wolf Rosenbach,
Rayburn Clark Smith,
Francis Kile Swartley,
James Field Willard,
Jacob Paul Jones Williams.

Bachelor of Music:

Arthur Lacey Baker,
William James Boëhm.

Bachelor of Science in Economics:

Charles Engle Chipley,
Caleb Cresson, Jr.,
Charles Condit Dibble,
Joseph Hollingsworth Huston,
Simon Katz,
Gustavus Charles Kuemmerle,
Charles Souder Langstroth,
Harry Lawson,
Horace Stanton Morrison,
Horace Rushton Moses,
Joseph Russell Smith,
Frederick Howard Siegfried,
Edward Gustavus Sohm,
Leo Solomon,
Wilson Stilz.

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Bachelor of Science in Architecture:

John Penn Brock Sinkler, William Wittenberg,

Bachelor of Science in Biology:

Gilbert Allis, Louise Hortense Snowden,
Randolph Evans Bender McKenney, Caroline Burling Thompson.

Bachelor of Science in Mechanical Engineering:

Thomas Craig Craig, Harold William Graeff,
Ralph Woolman Deacon, Simon Henry Harrison.

Bachelor of Science in Electrical Engineering:

Joseph Pollitt Barker, Edward Horace Landis,
Edward James Cately, Frank Cope Richardson,
Clarence Kennedy Crossan, Gilbert Irving Vincent,
Melbourne Eusebius Davis, John Shreeve Wise, Jr.

Bachelor of Science in Civil Engineering:

Alan Corson, Thomas Moore,
William Fernon Greene, James Herbert Stitzer, Jr.,
Leon Merz, Oscar James West,
Jerome Wilhelm.

Bachelor of Science in Chemistry:

William Clarence Ebaugh, Albert George Pfeiffer,
William Rawnsley Oglesby, Francis Cooper Pullman,
Joseph Percy Remington.

Mechanical Engineer:

Albert Pancoast.

IN THE FACULTY OF PHILOSOPHY.

Master of Arts:

Eleanor Anne Fyfe-Andrews, Joseph Vincent Crowne,
Mary Eliza Parker.

Master of Science:

Charles Collins Davis, William Kleefeld, Jr.

Doctor of Philosophy:

Raymond Macdonald Alden, Oscar Gerson,
Elizabeth Allen Atkinson, William Mason Grosvenor, Jr.,
Edith Bramhall, Harold Heath,
Walter Jacob Branson, Theodore Heysham,
Jacob Franklin Byler, Simon Koppé,
Henry Lewin Cannon, Victor Lenher,
Frederick Ehrenfeld, Charles Hallan MacCarthy,
Margaret Emma Nicholas Frazer, Joseph Merritt Matthews,

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Jesse Hamor Michener,
Pezavia O'Connell,
Edward Anson Partridge,
William Rolla Patterson,
George William Sargent,
Sadajiro Sugiura,
George Edward Thomas,
James Turley Van Burkalow.

IN THE FACULTY OF LAW.

Bachelor of Laws:

Ellis Samuel Abrams,
William Trumbull Aldrich, Jr.,
Roger Ashhurst,
James Ashworth,
Charles Edward Bartlett,
John Frederick Basford,
William Parson Beeber,
Alexander Benson,
Lynford Biddle,
John Blakely,
Samuel Boyle, Jr.,
Paul Rubens Brown,
George Haydock Brooke,
William Elwood Caveny,
William Shinn Clawson,
Clifton Henry Close,
Theodore Laverty Cobaugh,
Ezra Hoyt Connell,
William John Cooley,
Charles Frederick Da Costa,
George Feairheller Deiser,
Samuel Englander,
Philip Fine Fulmer,
Edward Prime Goodell,
Frederic Day Goodwin,
William Hubbard Goodwin,
George Alva Grevemeyer,
William Meredith Hanna,
Bernard Harris,
Willard Massey Harris,
Charles Elvin Hendrickson,
Alfred Heymann,
Ambrose Higgins,
Frederick Brackett Hill,
Diana Hirschler,
Carlos Edward Hough,
Arthur Houseman,
Samuel Flickinger Huber,
Willard Cartwright Jackson,
John Frederick Jenkinson,
John Graver Johnson,
John Brogan Jordon,
Harry Pennington Joslyn,
Charles Borromeo Joy,
Le Roy Clymer Kendall,
Charles Howard Kline,
Margaret Center Klingelsmith,
Harry Eugene Kohn,
Harry Johnson Kunkle,
Charles Lehr,
Moses Levy,
Theodore Nelson Lillagore,
Ray Littleton,
William Walter Lucas, Jr.,
Samuel Henry McFadden,
Edward Worrell Manderson,
Francis Roland Matlack,
James Scott MacCain,
Michael Joseph McEnery,
Joseph Aloysius McKeon,
David McCoach,
Francis Salisbury McIlhenny,
John Doughty McMullin,
William Maul Measey,
John Henry Minds,
Alfred Marcellus Mohr,
James Charles Murray,
George Erasmus Nitzsche,
John Ramsey Nolan,
William Aloysius O'Donnell,
Francis William Rawle,
Robert Patterson Reeder,
Herbert Leigh Rice,
Charles Henry Riegel,
Owen Josephus Roberts,
Thomas Roberts,
De Witt Clinton Robinson,
Louis Barclay Robinson,
William Arrott Robinson,
William Sandberg,
Albert White Sanson,
Gustavus Sickles,
Daniel Webster Simkins,
Charles Sinnickson,
John Daniel Stark,
Henry Gawthrop Swayne,

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Albert Mottram Thornton,
Warren Edward Tryon,
Clarence Vanderslice,
George Bertram Walker,
John Smull Wallace,
Frederick Hornick Warner,
Edward Waters Wells,
Roy Wilson White,
William Henry Wilson,
Horatio Nelson Willits, Jr.,
John Henderson Young.

IN THE FACULTY OF MEDICINE.

Doctor of Medicine:

Maurice Bertram Ahlborn,
Guy Levis Alexander,
Alfred Reginald Allen,
Harry Miller Anderson,
William Nesbitt Armstrong,
Hugh Hamilton Atkinson,
James Addison Babbitt,
Joseph Rolla Baldwin,
Thomas Barber,
Olin George Andrews Barker,
George Peter Barth,
Harvey Mayor Becker,
John Bennett, Jr.,
Leo Heller Bernd,
Charles Wainwright Birnie,
Newton Emerson Bitzer,
Walter Munro Black,
William Letcher Black,
Fred. Herman Bloomhardt,
George William Boot,
Samuel Clifford Boston,
Albert Edward Bower,
Morris Parker Boyle,
Joseph Bringhurst,
Alexander MacLeod Brown,
Charles Martius Bumstead,
Oscar Clayman Campbell,
Harry Keyser Carey,
Michael Lester Casey,
John Bliss Corser,
Lester Everett Cox,
Frank Ardary Craig,
George Sumner Crampton,
Alfred Cramer, Jr.,
William Wilson Crowe,
John Mulchinock Cruice,
Percival Walter Darrah,
Elmer A. Dean,
Matthew Augustus De Laney,
Breese Morse Dickinson,
George Henry Sawtell Dobbyn,
James Avery Draper, Jr.,
James Steward Eastwood,
James Franklin Edwards,
Sidney Jacob Eichel,
Macomb Kean Elmer,
Clifford Bailey Farr,
John Aloysius Farrell,
Ralph Wilson Ferry,
Max Feldman,
Wilfrid Bernard Fetterman, Jr.
William Hill Field,
James Patrick Fleming,
Otto Hottinger Foerster,
Curtis Smiley Foster,
Albert Philip Francine,
James Sterling Gilfillan,
James Joseph Gleeson,
George Henry Rankin Gosman,
Charles Andrew Graham,
Jay Weir Grissinger,
Claudius Robert Grosser,
Charles Roberts Haig, Jr.,
Walter Scott Hanley,
Delamere Forest Harbridge,
Richard Henry Harris,
Edward Robert Henning,
Jacob Davis Hershey,
George Reineman Herst,
William Giles Hess,
Eugene Theodore Hinson,
James Edward Hodges,
Arthur Hollingworth,
John Hoskins,
Frederick Hollis Howard,
George R. Irwin,
Harry Murray James,
George Oglevie Jarvis,
William Hamilton Jefferys,
John Johnston,
Thomas Cushing Jones,
Arthur Wiley Kaines,

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Clarence Kelsay,
Lucius Carter Kennedy,
Frank Dietrich Kilgore,
George Farquhar Jones King,
Arthur Simon Kistler,
Frank C. Leavitt,
Theodore Le Boutillier,
Joshua Willard Liggett,
Eugene Lindauer,
Charles Francis Linn,
Charles Hodge Lyon,
John Morris Markley,
Robert Joseph Marsh,
Wellington Smith Mason,
James Preston Miller, Jr.,
John De Mott Miller,
Charles Franklin Mitchell,
Edward Dana Mitchell,
Robert Harold Mitchell,
Charles Andrew Monagan,
Edward Kemp Moore,
Seth Eastman Moore,
Patrick Joseph Moran,
Michelle Arnold Morin,
John Anthony Murtagh,
Albert William Myers,
Harvey Joseph McCloughan,
George Walter McCoy,
Samuel McCullagh,
William Watson McCulloh,
James John McLinden,
Henry Dodge Nichols,
Charles Camblos Norris,
Thomas James Orbison,
Alfred James Ostheimer, Jr.,
Henry Khunrath Pancoast,
Roland Gardiner Paynter,
Howard Yarnall Pennell,
Urban Joseph W. Peters,
William Petry,
James McIlvaine Phillips,
Frederick John Plondke,
Iden Mayfield Portser,
George Elmer Price,
William Edward Quicksall,
Robert Stephen Reid,
Arthur Hart Remington,
Edward Milton Richman,
Frederick Charles Roberts,
George Robinson, Jr,
Charles Roland,
Nicolas Romero,
Harry Backenstoe Roop.
Witten Booth Russ,
Leon Trudeau Salmon,
William Hupp Sands,
Edwin Stanton Saylor,
Walter Ernest Seymour,
Frank Joseph Sexton,
Walter Ray Shoemaker,
Charles Beverly Shortlidge,
Charles Russell Smith,
Eugene Albert Smith,
Frank Herbert Smith,
Edward Wright Smitheman,
Albert Conrad Snell,
William Bancroft Stanton,
John Gurdon Steele,
Samuel Lewis Steer,
Paul Haldeman Stehley,
Charles Fullaway Stretch,
Howard Anderson Sutton,
George Alphonso Sweeney,
Earl Bertrand Sweet,
John Donald Target,
John Quincy Thomas,
Albert Ely Thompson,
John Benjamin Tobias,
Stephen Edward Tracy,
Robert Fitzsimmons Trainer,
James E. Trexler,
Alexander Augustus Uhle,
James Lindley Vail,
David William Van Camp,
Clarence Van Epps,
Samuel Milton Vernon, Jr.,
Joseph Patten Wales,
Albert Rowland Warner,
Harry Mead Warner,
David Fairchild Weeks,
Walter Bair Weidler,
Clay Holloway Weimer,
Edward Andrew Weisser,
Harry Clarkson Westervelt,
Edward Newlin Williams,
George Thomas Wilson,
Joseph G. Wilson,
Charles Russel Witherspoon,
Henry Thomas Woodward,
Charles Beatty Worden,
Nathan Shurts Yawger.

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IN THE FACULTY OF DENTISTRY.

Doctor of Dental Surgery:

Warren Babcock,
Charles Howard Bankhead,
Minot Volney Bastian,
Horace Palmer Beck,
Thomas Clawson Beswick,
William Walker Booth,
Charles Leggett Brininstool,
Rudolf Bum,
Jacob Treichler Butz,
Henry Pierre Calais,
Alonzo Campbell Caldwell,
Noble Chauncey Campbell,
Karl Edward Carlson,
Raymond F. Casler,
William Rabun Chaplin,
Joseph Warren Cheyney,
James Thomas Coyle,
William Laverty Cramer,
Edward Gillespie Cunningham,
Michael Joseph Danahy,
Charles Fisher Du Four,
Charles Cater Dupont,
Richard Lee Entwisle,
John Erwin,
Joseph Connelly Farmer,
Warren Van Houten Filkins,
Walter Harris Fordham,
Floyd Clarence Frederici,
Daniel Leo Gallivan,
William Gardner,
John Herbert Gartrell,
Albert Newton Gaylord,
Paul Edmond Gires,
Hans Joseph Victor Grüter,
Joshua Gilbert Hagee,
George Grier Hansell,
Hugo Crosta Hark,
James Monroe Hastings, Jr.,
John Isaac Hay,
Clare Martin Henry,
James Kerr Hunter,
Zachary Taylor Jackaway,
Hiram Cushman Jacobs,
Marshall Jesse Albert James,
Edward Morgan Jones,
Paul Clinton Jones,
William Lowman Keller,
Joseph Kussy,
Samuel Erb Langfitt,
Eugene Augustus Lincoln,
Oliver Grissinger Longenecker,
Roy Paxton McCowan,
David McGowan, Jr.,
Frederick Erskine McLaren,
Valentine Macdonald,
Otto Isaac Metzger,
John Duncan Millikin,
Carl Theodor Moehring,
Tolbert Buchanan Moorhead,
Clyde Monroe Naley,
Henry Cady Newkirk,
Charles Henry O'Neill,
Bryon Wilbur Palmer,
Charles Cushman Payne,
George Parry,
John Weeks Parsons,
Leroy Edson Perkins,
Talliesin Phillips,
William Dana Pursel,
David John Reese,
Alexander Hardcastle Reynolds,
Walter Richards,
Franklin Butler Roberts,
Edwin Walker Robinson,
Alfred Hopkins Sage,
Frederick Henry Saunders,
Alfred Reynolds Schermerhorn,
John Gibson Sears,
Louis Raymond Seymour,
Patrick William Shields,
Donald Henry Shoemaker,
Alfred Hamilton Sinsabaugh,
Samuel Snow Smith,
John Stearns,
Marcus Reid Stewart,
Leon Beaumont Tantum,
Charles Root Turner,
Ralph Ware Waddell,
Thomas Brian Wade,
Hans Theodor Waltisbühl,
George B. Weakley,
Walter Webb,
Fred. Frambes Wood,
Arthur Whitman Woodcock,
Howard Hillman Woodrow.

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IN THE FACULTY OF VETERINARY MEDICINE.

Doctor of Veterinary Medicine:

Stephen Landon Blount,
Guy Edward Chesley,
Albert Edward Cunningham,
Lewis Debbie Horner,
Joseph Johnson, Jr.,
Philip Kerr Jones,
John Francis McAnulty,
Stewart White McClure,
John Henry McNeall,
Joseph Neilson Megary, Jr.,
John Jacob Repp,
Ernest Philip Spaeth,
John Earnest Spindler,
Herman Henry Weinberg.

CERTIFICATE OF PROFICIENCY.

IN THE COLLEGE FACULTY.

In Architecture:

Harry Otis Austin,
Morris Cotgrave Betts,
Richard Conway Birney,
Horace Broadus Custer,
Charles Crothers Grant,
Virgil Lamont Johnson,
Luther Morris Leisenring,
Benjamin Morgan Nisbet,
Gustav Adolph Reinhardt,
George Bruckner Rheinfrank,
Robert Wodrow Snyder,
Werner Trumbower,
William Frederick Wischmeyer.

In Biology:

Samuel Leopold.

In Chemistry:

Claude Melnotte Dugan, Jr.,
Dillinger Cyrus Hanna.

In Civil Engineering:

Alfred Yngve Sundstrom.

In Interior Decoration:

Helen Moloney Pennington.

In Music:

Gertrude Allen,
Arthur Lacey Baker,
Julia Strawbridge Borden,
Edvthe White Davis,
Mary Emma Henderson,
Lucia A Heyl,
Mary Immel,
Emily Lobb Johnson,
Robert Henri Robinson,
Walter Louis Rosenberg,
Grace Maud Rowley,
Florence Irene Smedley,
Margaret Blanche Tyson,
Ella Worrall.

IN THE FACULTY AUXILIARY TO MEDICINE.

In Medical Jurisprudence:

Maurice Bertram Ahlborn,
Charles Wainright Birnie,
Matthew Augustus DeLaney,
Ellis Edgar Willits Given,
Charles Franklin Mitchell,
Thomas James Orbison,
Edward Milton Richman,
William Hupp Sands.

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HONORS.

IN THE COLLEGE.

The following students were awarded HONORS for the work of the Senior year:

In the Course in Arts and Science:

BURTON SCOTT EASTON,
JOHN LOUIS HANEY (with Special Mention in English).
ISADORE MERZBACHER (with Special Mention in Greek and Latin).
FREDERICK LOGAN PAXSON.

In the Course in Biology:

LOUISE HORTENSE SNOWDEN.

In the Course in Chemistry:

WILLIAM CLARENCE EBAUGH.

In the Course in Finance and Economy:

CHARLES SOUDER LANGSTROTH, WILSON STILZ.

In the Course in Mechanical Engineering:

THOMAS CRAIG CRAIG,
CHARLES COLLINS DAVIS (with Special Mention—Post-Senior).

The following students were awarded HONORS for the work of the Sophomore year:

In the Course in Arts and Science:

EDWARD ZIEGLER DAVIS, ALFRED BELDEN RICE,
STANLEY FOLZ, HAROLD HARRISON TRYON.

In the Course in Finance and Economy:

WALTER BIDDLE SAUL.

In the Course in Science and Technology:

WILLIAM HASTINGS EASTON.

IN THE DEPARTMENT OF PHILOSOPHY.

SENIOR FELLOWSHIPS.

On the George Leib Harrison Foundation:

RAYMOND MACDONALD ALDEN, A. B. (Penna., 1894), PH. D. (Penna., 1898), in English.

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CHARLES HENRY LINCOLN, A. B., A. M. (Howard, 1893, 1894), PH. D. (Penna., 1896), in American History.

ARTHUR CHARLES HOWLAND, A. B. (Cornell, 1893), PH. D. (Penna., 1897), in European History.

WALTER EDWARD WEYL, PH. B. (Penna., 1892), PH. D. (Penna., 1897), in Economics.

WILLETT LEPLEY HARDIN, B. S. (Buchtel, 1893), PH. D. (Penna., 1896), in Chemistry.

HONORARY FELLOWSHIPS.

ADELINA FRANCES SCHIVELY, Cert. in Biol., PH. D. (Penna., 1892, 1897), in Botany.

SAMUEL CHRISTIAN SCHMUCKER, A. B., S. B., A. M., S. M. (Muhlenberg, 1882, 1884, 1885, 1891), PH. D. (Penna., 1893), in Botany.

FELLOWSHIPS.

On the George Leib Harrison Foundation:

BARCLAY WHITE BRADLEY, A. B. (Penna., 1897), in Classical Languages.

VICTOR WILLIAM DIPPELL, A. B. (Penna., 1895), in Semitic Languages.

MARTIN SCHÜTZE (Universities of Freiburg in Baden and Rostock), in Germanic Languages.

HERBERT EUGENE BOLTON, B. L. (Wisconsin, 1895), in American History.

WILLIAM HARVEY ALLEN, A. B. (Chicago, 1897), in Political Science.

EDWIN SHERWOOD MEADE, A. B. (De Pauw, 1896), in Economics.

CHARLES DICKENS NASON, B. S. (Haverford, 1896), in Pedagogy.

ALFRED TINGLE, B. Sc. (Aberdeen, 1896; London, 1897), in Chemistry.

JESSE MOORE GREENMAN, B. S. (Penna., 1893), in Biology.

JEREMIAH MARCUS HADLEY, B. S. (Earlham, 1896), in Mathematics and Astronomy.

The five unassigned HARRISON FELLOWSHIPS were assigned for the year 1898-99, as follows:

LEE MALTBIE DEAN, B. A. (Yale, 1896), one to Indo-European Philology.

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ORLANDO FAULKLAND LEWIS, A. B., A. M. (Tufts, 1895, 1897), one to Germanic Languages.

CLAUDE HALSTEAD VAN TYNE, A. B. (Michigan, 1896), one to American History.

GEORGE RAY WICKER, A. B. (Cornell, 1890), one to Sociology.

JOHN BROOKIE FAUGHT, A. B. (Indiana, 1893), one to Mathematics.

On the Hector Tyndale Foundation:

MORTON GITHENS LLOYD, B. S. in M. E. (Penna., 1896), in Physics.

Assignments of the FELLOWSHIPS FOR WOMEN were made as follows:

On the Col. Joseph M. Bennett Foundation:

MARY BARTOL, A. B., A. M. (Bucknell, 1894, 1895), one to Classical Languages.

CAROLINE COLVIN, A. B. (Indiana, 1893), one to European History.

On the Frances Sergeant Pepper Foundation:

ANNA JANE MCKEAG, A. B. (Wilson College, 1895), one to Psychology.

On the Mrs. Bloomfield Moore Foundation:

ISABEL GRAVES, PH. B. (Wesleyan, 1891), A. M. (Western Reserve, 1897), one to English.

LILY GAVIT KOLLOCK, A. B. (Woman's College of Baltimore, 1895), one to Chemistry.

SCHOLARSHIPS.

On the George Leib Harrison Foundation:

FREDERICK LOGAN PAXSON, B. S. (Penna., 1898), in History and Economics.

ISADORE MERZBACHER, A. B. (Penna., 1898), in Classical Languages.

DANIEL ERNEST MARTELL, A. B. (Penna., 1898), in Modern Languages.

JAMES FIELD WILLARD, B. S. (Penna., 1898), in History and Philosophy.

BURTON SCOTT EASTON, B. S. (Penna., 1898), in Mathematics and Physics.

JOHN LOUIS HANEY, B. S. (Penna., 1898), in English and History.

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IN THE DEPARTMENT OF LAW:

The following members of the graduating class received their diplomas *cum laude:*

ROGER ASHHURST,
WILLIAM PARSON BEEBER,
WILLIAM JOHN COOLEY,
CHARLES BORROMEO JOY,
RAY LITTLETON,
FRANCIS SALISBURY MCILHENNY,
JOSEPH ALOYSIUS MCKEON,
WILLIAM MAUL MEASEY,
ALFRED MARCELLUS MOHR,
OWEN JOSEPHUS ROBERTS,
LOUIS BARCLAY ROBINSON,
FREDERICK HORNICK WARNER,
EDWARD WATERS WELLS,
ROY WILSON WHITE.

PRIZES.

IN THE COLLEGE.

1. The B. B. COMEGYS PRIZES, one for the best special examination in Latin required for admission to the courses in Arts and Science. To OSWALD THOMPSON ALLIS; Honorable Mention of HERBERT ADAMS GIBBONS: and one for the best special examination in Greek required for admission to the same courses, to HERBERT ADAMS GIBBONS; Honorable Mention of THOMAS FRANCIS CADWALADER.

2. The EUGENE DELANO PRIZE, for the best examination in the French and German required for entrance to College. To WILLIAM PAUL O'NEILL.

3. A prize, offered by the CLASS OF 1880, for the best examination in Mathematics, by a candidate for admission to the courses in Arts and Science. To LUCIUS FISHER CURTIS.

I.

THE FACULTY PRIZES.

1. A prize for the best Essay in Intellectual and Moral Philosophy by a member of the Senior Class. Subject: *The Moral Philosophy of Adam Smith as related to that of Hume.* To JASPER YEATES BRINTON.

2. A prize for the best examination by a member of the Freshman Class in Greek Prose Composition with the Accents. To THOMAS FRANCIS CADWALADER; Honorable Mention of WILFRED BORN VOGT and FRANK BROOKE EVANS, JR.

3. A prize to a member of the Senior Class, for the most meritorious work in the German Language and Literature over and above the regular course. Subject: Lessing's *Litteraturbriefe.* To JOHN LOUIS HANEY.

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4. A prize to a member of the Senior Class, for the most meritorious work in the French Language and Literature over and above the regular course. Subject: *Le Voyage de Charlemagne a Jerusalem.* To ABRAHAM S WOLF ROSENBACH.

5. A first prize and a second prize for the best examination on the lectures on Quaternions, given to the Voluntary Junior Class. To HENRY WALTER JONES and RALPH CHAMBERS STUART, respectively.

6. A prize for the best Essay by a member of the Junior Class. Subject: *The Life and Writings of Andrew Marvell.* To CHARLES THOMAS MITCHELL; with Honorable Mention of HORACE STERN and FREDERICK DREW BOND.

7. A first prize and a second prize for the best Declamation by a member of the Sophomore Class, the contest being open to the public. To ALLISON GAW and RALPH NEWTON KELLAM, respectively.

8. A prize and a second prize for the best and second best preparations illustrating the anatomy of any vegetable. To HARRIET BOEWIG and ANNIE BELL SARGENT, respectively; with Honorable Mention of HELEN TAYLOR HIGGINS and BLANCHE GARDNER.

9. A first prize and a second prize for the best and second best preparations illustrating the anatomy or Embryology of any animal. To LOUISE HORTENSE SNOWDEN and ANNIE BELL SARGENT, respectively; with Honorable Mention of HELEN TAYLOR HIGGINS and AMELIA C SMITH.

10. A prize to the member of the Sophomore Class who shall pass the best special examination in sight reading of Latin. To HAROLD HARRISON TRYON; with Honorable Mention of STANLEY FOLZ and CHARLES JASTROW MENDELSOHN.

11. A prize to the member of the Sophomore Class who shall pass the best special examination in sight reading of Greek. To CHARLES JASTROW MENDELSOHN.

II.

THE ALUMNI PRIZES.

1. The HENRY REED PRIZE, founded by the Alumni, for the best English Essay by a member of the Senior Class. Subject: *The Poetry of Rudyard Kipling.* To JOHN LOUIS HANEY.

2. A prize for the best Latin Essay by a member of the Graduating Class. To ISADORE MERZBACHER and WALKER MOORE LEVETT, respectively.

3. A prize for the best, and a prize for the second best, Original

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Declamation by a member of the Junior Class. To WILLIAM HAINES PARRY and THEODORE LANE BEAN, respectively; with Honorable Mention of HORACE STERN.

III.

GENERAL PRIZES.

1. A prize founded by HENRY LABARRE JAYNE, of the class of 1879, for the Best English Composition by a member of the Freshman Class. Subject: *The Poetry and Fiction of Robert Louis Stevenson.* To SAMUEL CROWTHER, JR., with Honorable Mention of ETHEL COOKE.

2. The JOSEPH WARNER YARDLEY PRIZE, founded by the Class of 1877 in memory of their classmate, for the best Thesis in Political Economy by a member of the Senior Class. Subject: *The Policy of the United States Concerning the Bounties upon Manufactures.* (Not awarded.)

3. A prize founded by D. VAN NOSTRAND, Esq., for the member of the Junior Class in Civil Engineering who attains the highest general average of scholarship. (Not awarded.)

4. A prize founded by the PHI KAPPA SIGMA FRATERNITY, in honor of their founder, SAMUEL BROWN WYLIE MITCHELL, M. D., of the Class of 1852, for the best work in English Composition done during the year by a member of the Sophomore Class. To JOHN SEBASTIAN CONWAY; with Honorable Mention of ALFRED BELDEN RICE and HARRIET BOEWIG.

5. The ASSAYERS AND MINERS GANGUE offers two prizes to members of the Post-Senior Class. Equally, to WILLIAM CLARENCE EBAUGH and CLAUDE MELNOTTE DUGAN, JR.

6. The "SONS OF THE AMERICAN REVOLUTION PRIZE, for the best Essay on some subject connected with the American Revolutionary History. (Not awarded.)

7. The GEORGE ALLEN MEMORIAL PRIZES, founded by JOSEPH G. ROSENGARTEN, Esq., for members of the Junior Class taking the Greek and Latin courses, as follows: In Greek, for the best examination on the *Oration of Demosthenes on the Crown,* read with the Professor as an extra subject, awarded to GERSHON BENEDICT LEVI; second prize to HENRY WILSON STAHLNECKER; and in Latin for the best examination upon some work to be announced from year to year, to be read with the Professor of Classical Philology as an extra subject. To LEON DIX; second prize, equally to HENRY WILSON STAHLNECKER and GEORGE WILLIAM BACON. The subject for 1897-8 was Plautus' *Mostellaria,* and Terence's *Adelphi.*

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8. The "SONS OF THE REVOLUTION" PRIZE. A first prize and a second prize for the best and second best Essays on some subject connected with the Revolutionary Period in the State of Pennsylvania. To FRANCIS SIMS MCGRATH and FREDERICK LOGAN PAXSON, respectively.

9. A special prize offered by S. WEIR MITCHELL, M. D., LL. D., for the best Essay by a member of the Senior Class on the subject: *Shakespeare's Use of Thou and You.* To BURTON SCOTT EASTON, with Honorable Mention of JOHN LOUIS HANEY.

10. The KAPPA KAPPA GAMMA FRATERNITY offered its Table at the Woods' Holl Laboratory, Mass., for the summer of 1898, as a prize to students in the courses in Biology. To ELMIRA LODOR.

11. THE WILLIS TERRY PRIZES.

(*a*) A prize for the student of the Freshman Class who shall have the best standing for the year. To MEREDITH BRIGHT COLKET.

(*b*) A prize for the student of the Sophomore Class who shall have the best standing for the year. To JULIUS STERN.

(*c*) A prize for the student of the Junior Class who shall have the best standing for the year. To JAMES BLAINE DONALDSON.

(*d*) A prize for the student of the Senior Class who shall have the best standing of the year. To JAMES RUSSELL SMITH.

(*e*) A prize to a student of the Senior Class for special research and investigation upon a subject to be determined by the Committee on Economics, and relating to the financial and industrial conditions of the United States. Subject: *Railway Co-operation: an Investigation of Railway Traffic Associations, and a Discussion of the Degree and Form of Co-operation that should be granted Competing Railways in the United States.* To CHARLES SOUDER LANGSTROTH; Honorable Mention of WILSON STILZ.

12. The ROPES PRIZE. A prize offered by JOHN C. ROPES, Esq., for the best Essay upon: *The Execution of Duc d'Enghien.* (Open to competition by members of Harvard University and the University of Pennsylvania.) To SIDNEY BRADSHAW FAY, A. B., Harvard University.

13. The FRAZIER PRIZE. GEORGE H. FRAZIER, Esq., of the Class of 1887, offers annually a prize of a standard work in literature to be chosen by him, and a value of one hundred dollars, to the student in the College of the University of Pennsylvania, who, being a member of the football team, baseball team, track team, or of the crew, shall attain the highest standing in scholarship. Awarded to WILLIAM NELSON MORICE.

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14. W. W. FRAZIER, JR., PRIZES. A first prize and a second prize to be awarded in a public debating contest. Open to all students candidates for a degree. Awarded to (1) THOMAS RAEBURN WHITE (Law); (2) WILLIAM CRAIG JOHNSTON (Law): Honorable Mention of ROY WILSON WHITE (Law), and BERTRAM DELROY REARICK (Law).

15. PRIESTLY CLUB PRIZE. In Chemistry. To WILLIAM CLARENCE EBAUGH.

16. The Medal presented by JOSEPH WHARTON, Esq., to the member of the Senior Class in the Wharton School in good standing who shall present the best Thesis. To WILSON STILZ.

IN THE DEPARTMENT OF LAW.

OWEN JOSEPHUS ROBERTS and ROY WILSON WHITE were elected Fellows of the Department of Law for one year.

The FACULTY PRIZE, for the best written examination with all the Professors. In the Third-year Class, to OWEN JOSEPHUS ROBERTS; with Honorable Mention of ROY WILSON WHITE and ROGER ASHHURST. In the Second-year, equally to ALBERT LUDLOW CRAMER and BERTRAM DELROY REARICK; with Honorable Mention of HERMANN LUDWIG GROTE and DAVID NEWLIN FELL, JR. In the First-year, to CHARLES LOUIS MCKEEHAN; with Honorable Mention of CHARLES HENRY HOWSON.

The P. PEMBERTON MORRIS PRIZE, for the best written examination in Evidence, Pleading and Practice at Law and in Equity. Equally to FREDERICK HORNICK WARNER and ROGER ASHHURST.

The SHARSWOOD PRIZE, established by the Alumni of the Department of Law, for the best essay by a member of the Graduating Class, was awarded to OWEN JOSEPHUS ROBERTS, for his essay entitled, *"The Rights of Stockholders in the Management of a Corporation."*

The MEREDITH PRIZE, for the second best essay, to ROY WILSON WHITE, for his essay entitled, *"Some Phases of Governmental Regulation of Contracts."*

IN THE DEPARTMENT OF MEDICINE.

The ALUMNI MEDAL, with an accompanying Purse of Fifty Dollars, to the Member of the Graduating Class who attains the highest general average in examination. To ELMER A DEAN.

The Prize of One Hundred Dollers, offered by a friend of the Department to the member of the Graduating Class who passes the best examination in Obstetrics. Equally to JAMES AVERY DRAPER, JR., and ALFRED JAMES OSTHEIMER, JR.

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The Prize of an Obstetrical Forceps, offered by the Professor of Obstetrics to the member of the Graduating Class who furnishes the best report of a case of Obstetrics occurring in the University Maternity Hospital. To BREESE MORSE DICKINSON.

The Prize of Twenty-five Dollars, offered by a friend of the Department to the member of the Graduating Class who passes the best special examination in Therapeutics. To BERNARD KOHN; with Honorable Mention of CHARLES RANSOM REYNOLDS.

A prize of a Surgical Pocket-case, offered by the Demonstrator of Anatomy, to the member of the Graduating Class who presents the best record of anamolies found in the anatomical rooms. To HENRY THOMAS WOODWARD.

The Prize of a copy of White and Martin's Genito-Urinary Surgery, offered by the Professor of Clinical Surgery to one member of each of the four Surgical Ward Class sections for reports of that service. To WILLIAM HAMILTON JEFFERYS; with Honorable Mention of HARRY CLARKSON WESTERVELT and BREESE MORSE DICKINSON.

The Prize of a Surgical Pocket-case, offered by the Professor of Clinical Surgery for the best report of his clinics during the session. To LOUIS CARTER KENNEDY; with Honorable Mention of HOWARD YARNALL PENNELL.

The two Prizes offered by the Demonstrator of Surgery are awarded as follows: A Surgical Pocket-case for proficiency in Fracture Dressings and in Operative Surgery. To FREDERICK FRALEY, JR.; with Honorable Mention of CHARLES RU LON PITTINGER and FRANKLIN LAFAYETTE WARREN. A Surgical Pocket-Case to MACY BROOKS of the First-year Class, for proficiency in Bandaging; with Honorable Mention of EDWARD ARMIN SCHUMAN and José M PORTUONDO.

The ZENTMAYER PRIZE of a microscope for the best examination in Histology and Embryology. To OSCAR NOEL TORIAN.

The Prize of a Hæmocytometer, offered by the Lecturer on Physical Diagnosis to the member of the First-year Class who presents the best report of his lectures on Physical Diagnosis. To ALVAN WOODWARD SHERRILL; with Honorable Mention of the reports of ARTHUR TRUMAN BOYER and JAMES RIESER GERHARD.

The Prize of an Antiseptic Minor Operating Case, offered by the Clinical Professor of Orthopædic Surgery for the best practical work in Orthopædic Surgery, or for the best report of his clinic, or for an acceptable original design in apparatus. To NATHAN SHURTS YAWGER.

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The Prize of an Axis-traction Obstetrical Forceps, offered by the Barton Cooke Hirst Obstetrical Society to the member of the Graduating Class who passes the best examination in Operative Obstetrics. To WILLIAM HAMILTON JEFFERYS.

IN THE DEPARTMENT OF VETERINARY MEDICINE.

The J. B. LIPPINCOTT PRIZE of one hundred dollars, awarded to the member of the Graduating Class who, in the three years spent in the Veterinary Department of the University, attains the highest general average in examinations. To JOHN JACOB REPP.

A Prize of an Ecraseur, offered by a friend of the Department to the member of the Second-year Class who passes the best examinations in Veterinary Anatomy. To JOHN PHILIP MILLER.

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ALUMNI ORGANIZATIONS.

The Alumni of the University are organized according to the departments from which they were graduated; there being five societies, representing respectively the College, and the Departments of Law, Medicine, Dentistry and Veterinary Medicine. There is also the Central Committee of the Alumni, established by enactment of the Trustees.

In addition to the foregoing, and as a means of systematizing and extending their several spheres of usefulness, there is a General Society of the Alumni of all departments. The organization of these various bodies, as well as of the local alumni societies in different sections of the United States, is given briefly below.

CENTRAL COMMITTEE OF THE ALUMNI.

This organization was established by the Trustees, March 7, 1882. Under the Revised Statutes, Sec. 34, the Central Committee is authorized, for every third vacancy which may occur in the Board of Trustees, to nominate four candidates, one of whom may be chosen a member of the Board; if none of these be elected, others are to be nominated until the vacancy shall be filled. The Central Committee arranges itself in certain sub-committees, one for each Department, whose duty it is, from time to time, to attend the examinations, recitations, and other exercises of that department, and to confer with the various Faculties on all matters tending to improvement.

The officers of the Central Committee are a President, a Secretary and a Treasurer, elected annually. The members are thirty in number, six elected annually for a term of five years, of whom two must be graduates of the College of at least three years' standing, two of the Medical and allied Departments, and two of the Law Department.

Stated meetings of the Central Committee are held on the fourth Mondays of March, May, September and December.

MEMBERS OF THE CENTRAL COMMITTEE.

President.—John Marshall Gest, A. M., LL. B.,	400 Chestnut St.,	Philad'a.
Secretary.—William M. Stewart, Jr., A. M., LL. B.,	400 Chestnut St.,	do.
Treasurer.—William H. Klapp, A. M., M. D.,	1733 Pine St.,	do.

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1899.

R. Dale Benson, A. M.,	510 Walnut St., Philad'a.
John Douglass Brown, Jr., A.M., LL.B.,	Drexel Building, do.
G. Colesberry Purves, A. M., LL. B.,	700 Walnut St., Philad'a.
Effingham B. Morris, A. M., LL. B.,	Girard Building, do.
William H. Bennett, A. M., M. D.,	332 S. Fifteenth St., do.

1900.

Wharton Sinkler, M. D.,	1606 Walnut St., Philad'a.
Frank P. Prichard, LL. B.,	1001 Chestnut St., do.
George S. Philler, A. M., LL. B.,	Drexel Building, do.
Lewis W. Wister, A. B.,	20 E. Logan St., Gtn., do.
Edward L. Duer, A. M., M. D.,	1606 Locust St., do.

1901.

Henry Budd, A. M.,	727 Walnut St., Philad'a.
William H. Klapp, A. M., M. D.,	1733 Pine St., do.
Radcliffe Cheston, M. D.,	Chestnut Hill, do.
Charles E. Morgan, Jr.,	Drexel Building, do.
Theodore M. Etting, LL. B.,	Drexel Building, do.

1902.

H. Laussat Geyelin, A. M., LL. B.,	Girard Building, Philad'a.
J. Levering Jones, LL. B.,	Drexel Building, do.
Alfred Whelen, M. D.,	123 S. Twentieth St., do.
William L. Winner, D. D. S.,	115 S. Sixteenth St., do.
John Marshall Gest, A. M., LL. B.,	400 Chestnut St., do.
Samuel F. Houston, Ph. B.,	307 Walnut St., do.

1903.

John H. Packard, A. M., M. D.,	110 S. 18th St., Philad'a.
Hon. Robert Adams, Jr., A. M.,	124 S. Sixteenth St., do.
William M. Stewart, Jr., A. M., LL. B.,	400 Chestnut St., do.
Hon. Frank M. Riter, LL. B.,	133 S. Twelfth St., do.
Louis Starr, M. D.,	1818 Locust St., do.
Hon. William W. Porter, A. M.,	623 Walnut St., do.

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THE SOCIETY OF THE ALUMNI.

OFFICERS.

President.—Joseph G. Rosengarten, '62.
Vice-Presidents.—John W. Faries, '31; William S. Blight, '46; Charles C. Harrison, '62; Henry Budd, '68.
Secretary.—Edward P. Cheyney, '83, 259 S. 44th St.
Treasurer.—Morris Jastrow, Jr., '81, 248 S. 23d St.
Historiographer.—Gregory B. Keen, '61.

This Society is composed of graduates of the College of the University of Pennsylvania, and of such other matriculates of that department as may have been elected to membership by the Board of Managers.

The Society holds its annual meeting, followed by a collation, on the evening of Commencement Day. The ordinary business of the Society during the year is conducted by a Board of Managers, elected at the annual meeting.

The annual dues are two dollars. Members of more than five years' standing may become life members on the payment of the sum of twenty dollars; other members on the payment of the sum of twenty-five dollars. Notification of a desire to join the Society should be sent to the Treasurer, Morris Jastrow, Jr., 248 South Twenty-third St., Philadelphia.

Copies of the Matriculate Catalogue, at $5.00, may be obtained upon application to the Treasurer.

SOCIETY OF THE ALUMNI OF THE LAW DEPARTMENT.

OFFICERS.

President.—Hon. William B. Hanna.
Vice-Presidents.—Victor Guillou, Frank P. Prichard.
Recording Secretary.—H. Laussat Geyelin.
Corresponding Secretary.—John Douglass Brown, Jr., 517 Drexel Building.
Treasurer.—Edmund Jones, 115 S. 6th St.

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SOCIETY OF THE ALUMNI OF THE DEPARTMENT OF MEDICINE.

OFFICERS.

President.—Meredith Clymer, M. D.,
Vice-Presidents.—John H. Packard, M. D.; James Tyson, M. D.; Samuel D. Risley, M. D.
Secretary and Treasurer.—Joseph P. Tunis, M. D., Presbyterian Hospital, Philadelphia.

Any graduate of the Department of Medicine, in good standing, may become a member of this Society after his eligibility has been acted upon by the Executive Committee. The annual dues are two dollars, which includes the *University Medical Magazine*. There is no initiation fee.

The Society has already prepared a complete printed list of the graduates of the Medical Department from the opening of the School up to 1877, with an appendix from 1877 to 1887, inclusive. An appendix covering the last ten years (1887-1897), and bringing the catalogue up to date, has just been published. A complete catalogue may be secured for $1.50, or either appendix for twenty-five cents, upon application to the Secretary.

THE PHILADELPHIA ALUMNI SOCIETY OF THE MEDICAL DEPARTMENT.

OFFICERS.

President.—William M. Welch, M. D.,
Hon. Vice-President.—Charles C. Harrison, LL. D.
Vice-Presidents.—Richard C. Norris, M. D.; S. W. Latta, M. D.; L. S. Clark, M. D.; C. P. Given, M. D.
Corresponding Secretary.—B. Franklin Stahl, M. D., 1502 Arch St., Philadelphia, Pa.
Recording Secretary.—William S. Wadsworth, M. D.
Treasurer.—Herbert B. Carpenter, M. D.

This Society was founded in the spring of 1892, among the Alumni of the Medical Department of the University living in and near Philadelphia. The meetings are held on the third Saturday evenings of February, May and November, and are of a purely social character.

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SOCIETY OF THE ALUMNI OF THE DEPARTMENT OF DENTISTRY.

OFFICERS.

President.—Boyd W. Baker, D. D. S.
Vice-Presidents.—W. L. Turner, D. D. S.; George C. Küsel, M. D., D. D. S.; M. N. Keim, Jr., D. D. S.
Secretary and Treasurer.—Luther M. Weaver, D. D. S., 7103 Woodland Ave., Philadelphia, Pa.
Orator.—Meyer L. Rhein, D. D. S.

Every graduate of the Department of Dentistry in good standing is considered a member of this Society, and will be sent bills for dues. Any member who shall pay into the treasury the sum of five dollars, or who shall for five years pay into the treasury the sum of one dollar yearly, shall become a life member.

The annual meeting is held on the day previous to Commencement, and is followed in the evening by a collation.

SOCIETY OF THE ALUMNI OF THE DEPARTMENT OF VETERINARY MEDICINE.

OFFICERS.

President.—Frank H. Mackie, V. M. D.
Vice-President.—James M. Mecray, V. M. D.
Secretary and Treasurer.—John H. McNeall, V. M. D.

All graduates of the Veterinary Department are eligible to membership. The annual meeting and banquet are held in June, on the evening of Commencement Day.

NEW ENGLAND ASSOCIATION.

OFFICERS.

President.—George A. Twitchell, M. D.
Vice-President.—Rev. William Wilberforce Newton, D. D.
Secretary and Treasurer.—Hugh W. Ogden, 53 State St., Boston, Mass.

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CHICAGO ALUMNI ASSOCIATION.

OFFICERS.

President.—W. E. Casselberry, M. D.
Vice-Presidents.—George H. Rozet, Frank Julien, Paul Guilford, M. D.; Everett Camp, LL. D.; Ira B. Crissman, D. D. S.
Treasurer.—Elliott B. Carpenter, D. D. S.
Secretary.—Charles H. Lodor, M. D., 3136 Indiana Ave., Chicago, Ill.

SOCIETY OF THE ALUMNI OF THE DISTRICT OF COLUMBIA.

OFFICERS.

President.—Commodore James H. Watmough.
1st Vice-President.—Professor Samuel M. Shute, D. D.
2d Vice-President.—Anthony Heger, M. D.
Secretary and Treasurer.—General Cecil Clay, Department of Justice, Washington, D. C.

PITTSBURG ALUMNI ASSOCIATION.

OFFICERS.

President.—Thomas Turnbull, Jr., M. D.
1st Vice-President.—W. F. Robeson, M. D.
2d Vice-President.—W. M. Carrothers. M. D.
Secretary and Treasurer.—Charles A. Wishart, M. D., Room 20, Westinghouse Building, Pittsburg, Pa.

NEW YORK SOCIETY OF THE ALUMNI.

OFFICERS.

President.—Henry R. Towne.
Vice-President.—William B. Boulton.
Secretary.—Robert C. Hill, 143 Liberty St., New York.
Treasurer.—Clement A. Griscom, Jr.

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GENERAL ALUMNI SOCIETY.

OFFICERS.

President.—Effingham B. Morris.
Vice-Presidents.—H. Laussat Geyelin, Horatio C Wood, M. D.; Hampton L. Carson, John Marshall, M. D.; Edward C. Kirk, D. D. S.
Secretary and Treasurer.—Lewis Neilson.
Registrar.—Wikoff Smith.
Executive Committee of the Board of Directors.—Lewis Neilson, Chairman; Effingham B. Morris, John Cromwell Bell, Hon. William W. Porter, H. Laussat Geyelin, Samuel F. Houston.

THE GENERAL ALUMNI SOCIETY was organized June 12, 1895, and incorporated June 21, 1897.

The objects of the Society are thus set forth in its charter: "To cultivate and foster intimate relations and feelings of brotherhood among the matriculates and graduates of all departments of the University of Pennsylvania; to promote the interests and general welfare of the said University, and to maintain and advance the cause of higher education." The Society publishes the *Alumni Register,* a periodical devoted to the University's interests, on the first of each month except August and September.

The Society is governed by a Board of Directors of fifteen members, with the officers—a President and a Vice-President, representing the members from each department of the University—ex-officio members. The Board is directed by the by-laws to select annually from its own number an Executive Committee of five. This committee is charged with the management of all the details of the Society's business, and with the supervision of the publication of the *Register.*

The by-laws provide that:—

"Any graduate of any department, or any matriculate in any department who has left the University, of good standing, may, upon payment of a subscription to the Society, become a charter member. Any man not a graduate or matriculate who is, or has been, a member of the Board of Trustees, or of the teaching force of the University of Pennsylvania, may become a member of this Society, but shall not hold office or vote at any meeting thereof.

"Members of the Society shall pay annually on the first day of the

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month in which their original subscription was made, a subscription *of such amount as they may elect, not less than one dollar,* fifty cents of which shall be a subscription to the *Alumni Register.*" The surplus revenue of the Society will be held as an Alumni Fund, and will be devoted, through the Trustees and under the direction of the Society, to the needs of the University.

The Society will undertake to promote class reunions as a feature of Alumni Day in Commencement Week of each year. Every year there will be reunions of four different classes of all departments—those having graduated two, five, ten, and twenty-five years before.

The office of the Society is in the Harrison Building (Rooms 718-719), Fifteenth and Market streets, where a complete directory is kept of all those who are or have been connected with the University as students, instructors or officers. The office is intended to be a bureau of information concerning University matters of special interest to alumni, one of its chief purposes being to serve as a rendezvous at all times for non-resident alumni.

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ACADEMIC COSTUME.

In order that the administrative officers, members of faculties and graduates of this University may appear in appropriate academic costume on official occasions, the Corporation has adopted the following plan (known as the "Intercollegiate System"), so adjusted as to suit the organization of the University of Pennsylvania. This system, as detailed below, has been made statutory (Revised Statutes).

SECTION I.—The following described academic costume is ordered to be worn upon all appropriate occasions, as indicating the several degrees and the faculties to which they pertain:

GOWNS.

(1) Pattern: those commonly worn, with pointed sleeves for the Bachelor's degree; with long, closed sleeves for the Master's degree; and with round, open sleeves for the *Doctor's degree. (2) Material: worsted stuff for the Bachelor's degree; silk for the Master's and Doctor's degrees. (3) Color: black. (4) Trimmings: for the Bachelor's and Master's degrees, the gowns are to be untrimmed. For the Doctor's degree, the gown is to be faced down the front with black velvet, with bars of the same across the sleeves; or the facings and crossbars may be of velvet of the same color as the binding or edging of the hood (see below), being distinctive of the faculty to which the degree pertains.

HOODS.

(1) Pattern: the pattern usually followed by colleges and universities, save as modified below. (2) Material: the same as that of the gown. (3) Color: black. (4) Length: the length and form of

* In all cases when the *Doctor's* degree is mentioned, reference is made ONLY to degrees in Philosophy, Divinity, Letters, Music, Science, or Laws. Holders of the degrees *Doctor of Medicine*, *Doctor of Dental Surgery*, *Doctor of Veterinary Medicine*, will wear gowns similar in all respects to those prescribed for *Bachelors*.

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the hood will indicate the degree, as follows: for the Bachelor's degree, the length shall be three (3) feet; for the Master's degree, the length shall be four (4) feet; and for the *Doctor's degree, the length shall be the same [*i. e.*, four (4) feet], but shall have panels at the sides. (5) Lining: red and blue silk, arranged in the form of a chevron. (6) Trimmings: the binding or edging to be four (4) inches in width, of silk, satin, or velvet, the color to be distinctive of the faculty to which the degree pertains, thus: FACULTY OF ARTS AND LETTERS, white; FACULTY OF SCIENCE, gold yellow; FACULTY OF MUSIC, pink; FACULTY OF THEOLOGY, scarlet; FACULTY OF PHILOSOPHY, dark blue; FACULTY OF LAW, purple; FACULTY OF MEDICINE, green; FACULTY OF DENTISTRY, lilac; FACULTY OF VETERINARY MEDICINE, gray.

CAPS.

The caps shall be of the material and form generally used, and commonly called "mortar-board" caps. The color shall be black. The Doctor's cap may be of velvet. Each cap shall be ornamented with a long tassel attached to the middle point at the top. The tassel of the Doctor's cap may be, in whole or in part, of gold thread.

SECTION II.—Members of the faculties, and any person officially connected with the University, who have been recipients of academic honors from other universities and colleges in good standing, may assume the academic costume corresponding to their degree, as described in the foregoing section; *provided that* such right shall terminate if such persons shall cease to be connected with the University. The Provost, Vice-Provost and Deans of Faculties may adopt distinctive badges, not inconsistent with the costume hereinbefore described.

For further information, address the Assistant Secretary of the University.

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* See note preceding page. Holders of the degrees *Doctor of Medicine*, *Doctor of Dental Surgery*, or *Doctor of Veterinary Medicine*, will wear hoods in all respects similar to those prescribed for *Bachelors*, save in the case of the binding or edging corresponding to the appropriate faculties.

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DIRECTORY OF OFFICERS.

The following is a complete directory of all University officers, both of administration and of instruction. *The address given in each case is that to which business mail matter should be sent.*

Unless otherwise specified, all the street addresses given below are in the city of Philadelphia.

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* Absent on leave.

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* Absent on leave.
† Appointment made too late for insertion in the list of *Officers of Instruction*, pages 24-41.

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† Appointment made too late for insertion in the list of *Officers of Instruction*, pages 24–41.

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† Appointment made too late for insertion in the list of *Officers of Instruction*, pages 24-41.

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GENERAL SUMMARIES.

Officers of Instruction.

The College	106	
Department of Philosophy	55	
" " Law	14	
" " Medicine	91	
Laboratory of Hygiene	3	
Department of Dentistry	39	
" " Veterinary Medicine	18	
Emeritus Professors	5	
		331
Duplications		73
Total		258

Students.

The College	School of Arts	365	926
	Towne Scientific School	284	
	Courses for Teachers	277	
Department of Philosophy		158	
" " Law		320	
" " Medicine		835	
Laboratory of Hygiene		19	
Department of Dentistry		502	
" " Veterinary Medicine		50	
			2810
Duplications			20
Total			2790

Geographical Summary of Students.

Africa	1	Connecticut	31	Hawaii	1
Alabama	2	Costa Rica	1	Hayti	1
Argentine Rep.	2	Cuba	6	Holland	1
Australia	5	Delaware	44	Honduras	1
Austria	1	Dist. of Columbia	4	Illinois	22
Barbadoes	2	Ecuador	2	Indiana	10
Brazil	2	England	3	Iowa	14
California	16	Florida	2	Ireland	1
Canada	23	France	6	Jamaica	1
China	2	Georgia	7	Japan	3
Colorado	2	Germany	11	Kansas	9

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Kentucky	7	New York	114	Tennessee	7
Leeward Islands	1	New Zealand	3	Texas	5
Louisiana	3	Nicaragua	5	U. S. of Colombia,	2
Maine	21	North Carolina	10	Utah	4
Maryland	24	Ohio	51	Vermont	8
Massachusetts	69	Oklahoma Ter.	1	Virginia	13
Mexico	3	Oregon	2	Washington	6
Michigan	4	Pennsylvania	1947	West Virginia	11
Minnesota	4	Porto Rico	1	Wisconsin	12
Mississippi	2	Rhode Island	13	Wyoming	1
Missouri	13	Russia	3		
Nebraska	6	Scotland	2		2810
New Hampshire	8	South Carolina	3	Duplications	20
New Jersey	175	Sweden	1		
New Mexico	2	Switzerland	4	Total	2790

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